

MARCH 1960

BUTANE-PROPANE *News*

A CHILTON  PUBLICATION

HEADQUARTERS FOR L.P. GAS INFORMATION SINCE 1931

*Are your
delivery costs
too high*

When your customers' tanks or bottles are metered you can fill or exchange them at your own convenience. This permits you to schedule truck deliveries on a regular route basis without costly backtracking. And with meters you'll eliminate those nuisance calls for after-hours service. You'll

save truck miles, time and, of course, money. Get facts now on all the advantages that go with vapor-metering. Write for our fact packed bulletin Adv. 41. Rockwell Manufacturing Company, Pittsburgh 8, Pa. In Canada: Rockwell Manufacturing Company of Canada, Ltd., Guelph, Ont.



VAPOR METERING *will improve your profit picture*

THE MODERN WAY TO SELL LP-GAS

Thousands of these meters are in service, making money by saving money for LP-Gas distributors. The Rockwell LPG meter has smart, modern lines. It is cased in a strong, weatherproof aluminum alloy housing. Its capacity rating of up to 240,000 Btu's per hour is ample both for today's and tomorrow's loads.



Up your LP-Gas sales through service to lift truck users

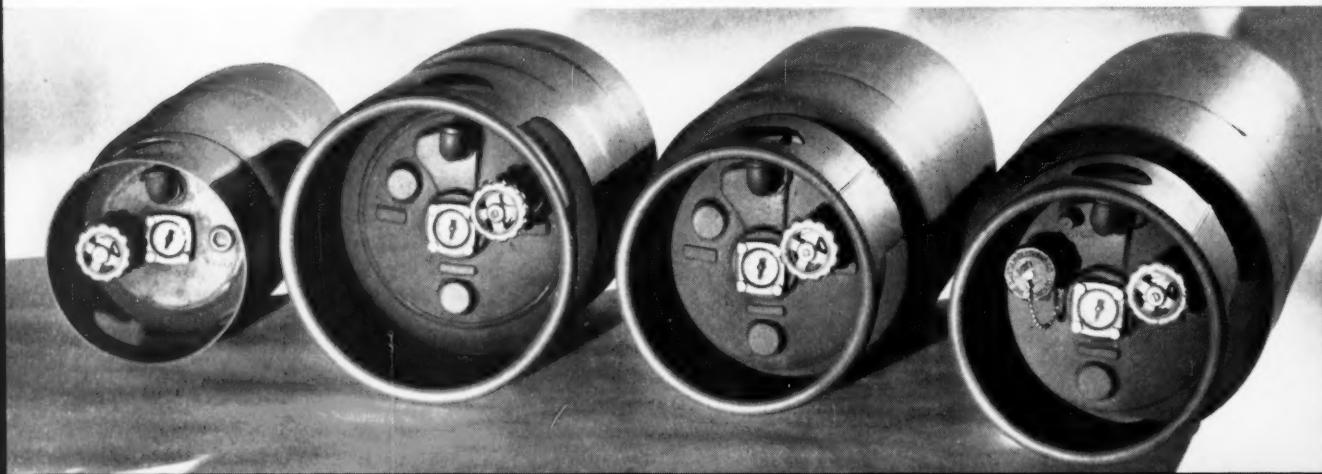
Your fastest growing market for LP-Gas is among lift truck users. Manufacturers are making more lift trucks with LP-Gas power than ever before. Many lift truck users now are *converting* to LP-Gas power.

Hackney engineers, working with lift truck manufacturers, have developed approved cylinders in 4 sizes... 20 models. These cylinders

are right for part-time or continuous operation... any refueling method... vertical or horizontal installation... replaceable or permanent mounting... liquid or vapor service... and meet all safety code specifications.

Write today for specifications of Hackney LP-Gas lift truck cylinders recommended in lift truck manufacturers' list.

Hackney lift truck cylinder Models H14LV, H20L-12, H33L and H43L.



Close-up of strong, long-lasting, full-curved foot ring that can take the rough handling involved.

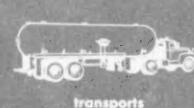


Pressed Steel Tank Company

Manufacturer of Hackney Products

1487 South 66th Street, Milwaukee 14, Wisconsin

Branch offices in principal cities



bulk storage tanks

This year,
as in the past,
the newest
Control ideas
and developments
will come from
Robertshaw...
watch for them

WATER HEATER CONTROLS

Unitrol 110
Unitrol 200
Unitrol 400
Unitrol 110R
Unitrol 200R
Unitrol 400R
Pilots and Thermocouples

SPACE HEATER CONTROLS

Unitrol 110S
Unitrol 110SR
Unitrol 1000
Pilots and Thermocouples

CENTRAL HEATING CONTROLS

Wall Thermostats
Fan and Limit Switches

Robertshaw 

GRAYSON CONTROLS DIVISION • ROBERTSHAW-FULTON CONTROLS COMPANY
LONG BEACH 5, CALIFORNIA

POWELL

WORLD'S LARGEST FAMILY OF

VALVES

performance makes the world of difference

Powell LPG Valves for Butane and Propane Gases

Powell LPG valves are expertly designed and engineered to safely handle liquid or gaseous butane, propane, and other hydrocarbons. Available in bronze—globes, angles, gates, checks; and in steel—globes, angles, checks . . . for 400 pounds W.O.G.

Trim and internal working parts are easily and quickly

renewable. Valves can be re-packed under pressure when wide open. All are listed by Underwriters' Laboratories, Inc.

One quick call to your local Powell distributor can fill all your valve needs. Or write to us . . . a leader in the valve industry for 114 years!



Fig. 86190—Steel LPG globe valve. Union bonnet; special composition disc; renewable screwed-in nickel-bronze seat ring.



Fig. 8151—Bronze LPG angle valve. Renewable, special composition disc, integral seat. Also available with screwed-in nickel-bronze ring—Fig. 8103.



Fig. 86196—Steel LPG horizontal lift check valve. Screwed-on cap. Stainless steel/spring, guided disc holder, renewable screwed-in nickel-bronze seat ring.

THE WM. POWELL COMPANY • DEPENDABLE VALVES SINCE 1846 • CINCINNATI 22, OHIO

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BEHIND THE SCENES

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ADVERTISING OFFICES

New York (17) 100 E. 42nd St.
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Chicago (1) 360 N. Michigan Ave., Suite 418
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San Francisco, 1355 Market St.
 Frank McKenzie, UNDERhill 1-9737

Los Angeles (57) 198 So. Alvarado St.
 Larry Jackson, DUNKirk 7-4337

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Editorial and advertising offices:
 198 So. Alvarado St., Los Angeles 57
 Phone DUNKirk 7-4337

BPA



NBP

The old and the new

The main reason why BPN is so influential abroad is that the grist for our editorial mill is progress of the industry in the U. S., and the U. S. is the acknowledged leader among the nations of the world in the development of the LPG business.

This is not to belittle in any way the tremendous strides being made in the other nations. It's just that, chronologically, when it comes to LPG we're the "old country." We simply got a head start on the rest of the world.

There's nothing backward about the Old World. It has been quick to adopt the ways of the new, and in many cases improve on them.

The case of Sarah Sweeney of Magilligan, Ireland, is symbolic. Mrs. Sweeney lives with her daughter, Mrs. Anne McDaid, in a tiny cottage overlooking Magilligan strand and the Atlantic Ocean. In the distance are the hills of Donegal.

One day a brand new Kosangas stove arrived at the cottage. Mrs. Sweeney, who has always been an enthusiastic baker, was delighted. Soon she was using the range to turn out rounds of Ulster soda bread and sponge cakes. It was so much easier to use than the old open fire and griddle that she had been used to. She was happy to chuck the old methods in favor of the new, in spite of her age.

Which is pretty remarkable, considering she is 107 years old. The oldest woman in Ireland, so they say.

Incidentally, the source of this information is pretty remarkable, too. It's a clipping, sent to us from Cincinnati (U.S.A.) by Svend K. Tholstrup. Svend in turn got it from his cousin, Jorgen H. Tholstrup, who is general manager of the Kosangas company in Eire. Kosangas, of course, is a company with international outlets, but it headquarters in Denmark. The folks who run it, the Tholstrups, are Danish.

In the margin of the clipping, Jorgen had written, "Sende det editor en af "Butane-Propane News." Irland's aeldste kvinde bruger LPG!!

"Det er da news!!"

To which we cannot help but add, "Sure an' begorrah, it is!!"

BACK TALK

"Ridiculous little bubbles"

South Pasadena, Calif.

In connection with the recent interest in speeding deliveries of L. P. gas to consumer tanks from delivery trucks, it has come to our attention that many truck designers are paying very careful attention to the necessarily high pressure build-up in tanks being filled. This is of particular importance in areas where vapor return connections cannot be made. It is well that this subject, which is so important to safety in delivery operations, is receiving study.

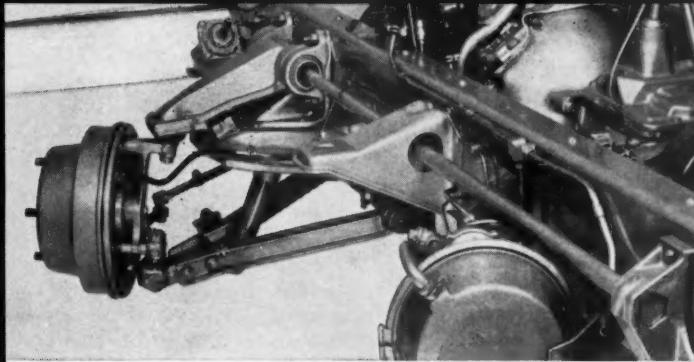
A fact that is sometimes overlooked, however, is pressure *decrease* in delivery truck tanks being unloaded, where no vapor return connection is made. This decrease is substantial. Those who have neglected to consider it have been disappointed with results obtained from pumps on some "high-flow" trucks.

While it is probable that some pumps now made can overcome this additional obstacle when installed properly with pressure decrease kept in mind, there is a peculiar problem on which information is badly needed in order to completely solve the situation. Here is the question: when vapor bubbles form within the liquid space of an L. P. gas tank, how fast do they rise to the surface level? In other words, what is "bubble velocity" in feet per second or per minute, etc?

It would be appreciated if anyone having information on this subject would communicate with me. Strange as it seems, the profit picture for L. P. gas deliveries



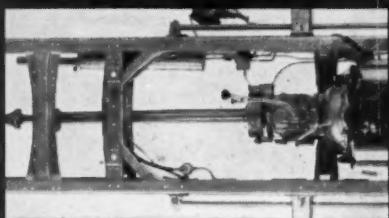
Chevy's major components for 1960 last up to four times longer than ordinary truck parts—exhaustive testing has proved it. Likewise, the totally new cabs have proved 67% more resistant to twisting; and new frames for many models are as much as 4.8 times stronger in torsional rigidity. These are typical 1960 Chevrolet truck facts and figures—and they point up a new kind of tough truck build that helps you hang on to your dollars!



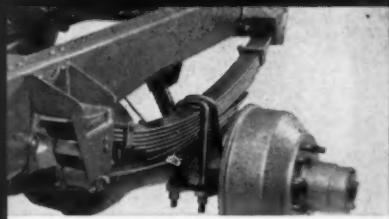
Chevy's new torsion-bar independent front suspension saves maintenance, increases work output. Independently suspended front wheels step right over bumps; tough torsion bar springs soak up shocks. As much as 58% of all objectionable road shock is absorbed before it reaches truck body, sheet metal or driver!



Chevy's precision-balanced wheels run smoother. Balancing weight shows that all front wheels are balanced in assembly—an advantage no other truck offers. It's assurance of easy handling; that tires will last longer without shimmy and shake from wheel imbalance.



Chevy's new frames are built with new brawn. Box-section rail design is stronger than ever; rail section modulus has been increased as much as 57%. Massive "K" or "X" brace crossmembers add to truck stamina; help keep you going years longer at least expense.



Chevy's easier riding rear springs help roll up profits. New variable-rate rear springs come in high capacities to handle huge payloads. Spring resistance adjusts automatically to cushion the load better.

CHEVROLET'S BIG NEW BUILD IS LIKE MONEY IN THE BANK FOR YOU!

Here are just a few of the *many* ways in which Chevrolet's totally new build for '60 will work to build a bigger bank account for you. They show that a '60 Chevy means *profit* through longer life, less maintenance, easier working, out-sized cargoes and extra economy! You'll find, too, that 1960's savingest truck power is Chevrolet's: famous economy 6's and efficient short-stroke V8's for light-duty models . . . high-power, high-torque V8's and tough, dependable 6's for the bigger trucks. It'll profit you to see your Chevrolet dealer about Chevy's big new build, sometime soon. . . . Chevrolet Division of General Motors, Detroit 2, Michigan.

1960 CHEVROLET STURDI-BILT TRUCKS



Scenes • Continued

may well be tied into this seemingly ridiculous little bubble, and its speed when rising.

LAWRENCE W. SMITH

Smith Precision Products Co.
Readers may write direct to Mr. Smith at 1135 Mission St., South Pasadena, Calif., or in care of BPN at 198 S. Alvarado St., Los Angeles 57, Calif.—Ed.

"Surprised and pleased"

Lebanon, Ohio

We were surprised and pleased with the excellent publicity you gave the Ohio LPGA in your January issue of BPN.

The board of directors of OLPGA met in Columbus on January 12, and wish to express their thanks for the coverage of our year's activities, which is very apropos at this time.

We are wondering is there any possibility of our receiving 100 copies of the article, which we can use to advantage in our membership drive which is to extend during this 90-day period, ending on March 18, just prior to our annual convention and trade show?

Our membership committee believes it could be used as another "selling point."

WARREN C. NELSON
Executive Secretary

Butane shortage

Dallas, Texas

I spent a month in Mexico, going down the Pacific Coast from Guaymas to Guadalajara and back up the center of the Rockies to El Paso, calling on every butane dealer I could find.

I found, among other things, that the shortage of butane in Texas is cause for serious concern down there, and a grave threat to the safety of the people. Butane, as you know, is being bought up for chemical plants on pipe line contracts. Propane is available, in fact cheaper by 30 per cent in some cases than butane. Worst of all, some dealers are afraid they won't be able to get butane at all.

This means that those milk cans and kerosene cans and sardine cans they use for butane bottles down

there are going to rip wide open the first time somebody gets desperate and decides to risk a load of propane mixed in with his usual butane. I have called this matter to the attention of authorities and responsible industry people on both sides of the river. In fact, my letter on the subject just appeared in a daily newspaper in Mexico City.

The shortage of butane is an emergency matter, too, in Texas, where thousands of low pressure underground tanks have been in service for years. Dealers are being told, "sell them new tanks. Refuse to fill the obsolete vessels. We can't guarantee you a supply of butane any longer." Lots of people are going to be cold this winter, and the industry will get a bad name from it. On the other side of the border, where respect for regulations, property, and human life are not so rigorous, a number of lives may be lost with bottles never intended for propane spewing gas on a hot afternoon out the relief valves, or at worst, ripping open.

ROBERT N. JONES
J & S Carburetor Co.

Reprints of Rose's sales aids

Linden, N. J.

On page 88 of the December 1959 issue of BPN there is a picture and a list of various literature used by Joe Rose, Propane Industrial Service Inc. in selling LPG to his various customers.

If possible, we would appreciate your sending us a copy of each reprint mentioned. If only the BPN reprints are available, we would appreciate a copy of same with your advice regarding where copies of the other articles might be obtained.

J. B. PATBERG
Esso Research & Engineering Co.

Close call

Kalamazoo, Mich.

We have built a small home and have purchased a Safarie travel trailer for our trips to Florida after retirement this spring. It so happens that this trailer is equipped with one of the Thurm brand of gas heaters which has caused at least six deaths in Michigan in the last few months.

I would appreciate your advice on two points. First, can you put me in touch with a manufacturer who makes a wall type gas heater suitable for a 21 ft trailer. Second, can you send me the heater installation requirements for the state of California, which I am sure, are the very strictest. We have a son living in San Diego and will be visiting him next fall or winter so we don't want any trouble on that score.

Fortunately our trailer is now in storage and won't be used again until about April but we feel that we must have the heater changed as we noted several irregularities in its installation and action the few times we used it last fall.

Your help will be greatly appreciated.

BURKE EWING

We sent Mr. Ewing the names of some manufacturers in his area and gave him the address of the promulgating body in California (Department of Industrial Relations, Division of Housing, 785 Market St., San Francisco 3). He's right—the California laws are the strictest, as was stated in last month's issue.—Ed.

Katy Railroad

Lake Geneva, Wisc.

We have read with interest your article in the November issue about the Katy Railroad's plan to pipe propane gas service to Wisconsin and the Midwest... We will appreciate whatever information you can give us with regard to this project, and the proper people to contact.

E. P. MINK
Wisconsin Southern Gas Co., Inc.

The line is now called Mid-Continent Eastern Pipeline and the man to contact is Hugh Robinson, Consultant, 428 National Bank of Tulsa Bldg., Tulsa, Okla.—Ed.

"Get Active in Politics"

Houston, Texas

Please send three copies of your article "Get Active in Politics," which appears in the January 1960 issue of BPN, pages 41-44.

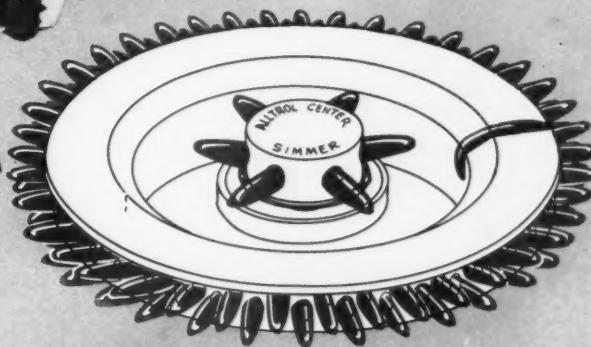
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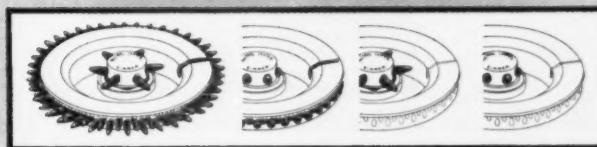
**Next to my six-shooter, the most
convincin' thing on the range is...**



ALLTROL®
CENTER SIMMER BURNERS



Send for **FREE**
CENTER SIMMER
Demonstration
Manual. Contains
five simple, sales-
closing demonstra-
tions.



"Be a smart Buckarool Draw a bead on those 'jist lookers' by showin' 'em how this star feature of your Gold Star ranges actually works. Yessiree, when you demonstrate its measured heat settings yore usin' a real double-barrel 'conviner,' because ALLTROL Center Simmer's 'clicks' are as famous as Billy the Kid's six-guns. No need to be a spell-binder. Jist show 'em . . . and the sale's as good as in yore saddlebags."



ALLTROL CENTER SIM-
MER Burner meets the
basic specifications
for AGA "Gold Star
Ranges."



HARPER-WYMAN COMPANY

Specialists in Burners and Controls for Domestic Gas Appliances

Dept. 30-B, 8550 Vincennes Ave., Chicago 20, Illinois



Why Suburban LP Dealers get

There is one big, powerful reason why Suburban Counter-Flo Wall Heaters are the best bank-account builders for LP dealers. Just *one* big reason—*customer satisfaction*.

Satisfied customers give you a good reputation—a selling point that's hard to lick. And Suburban Counter-Flo forced air wall heaters mean *satisfied customers* every time—for a lot of reasons:

It's *forced-air* heating—and that kind of heating gives your customer the best heating comfort any wall heater can provide.

It's the *best* forced-air heating—Suburban Counter-

Flo Heaters have superior engineering, are scientifically designed to draw cold air through the top and force warm air out at the floor level.

It's the best looking heater on the market—looks good in any room. It's a trouble-free performer—automatically controlled. And it's a *guaranteed performer*—every Suburban Counter-Flo Wall Heater is *guaranteed for 20 years*.

Install the heater that will do the most for you, by giving the most satisfaction to your customer. Mail the coupon today—and get the whole Suburban story.

FREE DISPLAY—SALES KITS! Suburban supplies you with displays, literature, sales helps. Mail the Coupon now!



their limit every time!



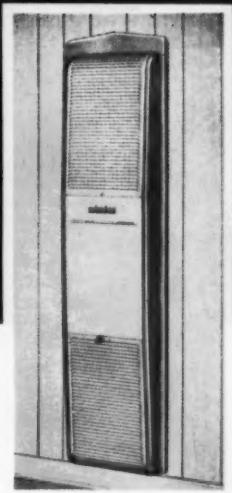
CHOOSE FROM A FULL LINE

Suburban wall heaters available in 18,000 to 50,000 BTU models — gravity and forced air. Also available — Suburban gas-fired, fully automatic floor furnaces at the right price!

Gravity Models

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Built-In Wall Heaters • Floor Furnaces • Ranges



Forced Air Models

Samuel Stamping & Enameling Co.,
Dept. BPN - Chattanooga, Tennessee

Please send me, without obligation, all the facts on
Suburban wall heaters . . . floor furnaces.

Name _____

Address _____

City _____ State _____

"Our '59 Fords have logged over 80,000 trouble-free



miles with only routine, ICC-prescribed maintenance"

says *Ed Seaton, Jr.*
President
Refiners Transport, Inc.
Nashville, Tennessee



Refiners Transport, Inc., one of the South's leading common carriers, is licensed to haul liquid commodities in seventeen states. This progressive company leases its tractors from independent contractors and has always had more Fords in its fleet of tractors than any other make. Here is what Mr. Seaton has to say about them:

"In the 10 years we've been in business, we have had more satisfactory service out of Fords than any other vehicle in the same price class. They just don't require the repairs that other makes do and the '59 Ford F-1000 tractors seem to be the best yet. We haven't experienced any downtime with them and a couple have logged over 80,000 miles with no repair work on them other than our regular ICC-prescribed maintenance.

"The majority of our independent contractors

drive their own tractors, and the ones on the shorter hauls buy Fords with the Big V-8 because they outperform everything else on the grades. With a Ford, they don't have to run the engine as fast to maintain legal road speeds and there is ample power for good acceleration. In fact, the men with the F-1000's say they haven't seen anything yet with a comparable gross that they couldn't pass. The lighter chassis weight of a Ford frequently means as much as 300 gallons more payload, too!"

Again in '60 FORD TRUCKS offer Certified Savings!

CERTIFIED ECONOMY

This year, if you buy a Ford Truck, you get a truck with certified economy in the three major expense items: gasoline, tires and initial price.



Best Gas Mileage! Results of second running of Economy Showdown U.S.A., show 1960 Ford ½-ton Pickups won every test—beat the average of the other four leading makes by 13.1%.



Double Tire Life! Under average conditions, Ford's truck-type front suspension gives double the front tire life of that obtained with "soft-type" independent system used on some 1960 trucks.



Lowest Prices!* New 1960 Ford ½-tonners are priced from \$33 to \$181 below those of leading competitive makes. List prices of Ford Light and Medium Duty models are lowest in their class.



CERTIFIED ECONOMY REPORTS

Certified results of these and other tests conducted by America's leading automotive research organization, plus a comparison of manufacturers' suggested list prices, are now available at your Ford Dealer's. Take him up on his offer to check the records . . . see and drive the new Ford Trucks . . . and you'll save for sure!

*Based on latest available manufacturers' suggested retail prices, including Federal excise tax, excluding dealer preparation and conditioning and destination charges.



Automatic Radiator Shutters, standard on all Super Duty models, add considerably to engine life . . . mean less expansion and contraction, more efficient combustion and better lubrication.



Dynamometer Tests of Ford's submerged-type electric fuel pump showed no power loss at temperatures up to 200° F vs. 9% loss with mechanical fuel pump under the same conditions.



Shaker Table Tests plus constant exposure to oil, water and heat proved Ford's 1960 wiring harness to be three times longer lived than the 1959 harness.



FORD TRUCKS COST LESS

LESS TO OWN . . . LESS TO RUN . . . BUILT TO LAST LONGER, TOO!

PHILGAS[®] PROFIT PLAN AT WORK

Business Control Workshop shows you how to increase profits without increasing sales.

If you have all the LP-Gas business you can handle at present, but are not getting the best returns from your work and capital invested, the Philgas Business Control Workshop can help you. The Workshop is a "shirt-sleeve" session conducted by Phillips for LP-Gas dealers. It takes up your individual problems and suggests solutions based on hundreds of similar case histories. The Philgas Business Control Workshop will analyze profit-and-loss statements and suggest ways to decrease expenses, increase net profit.

Phillips, the largest producer-marketer in the LP-Gas business, is specially qualified to give practical, dollars-and-sense advice. Phone your nearest Philgas Sales Office. Ask when the next Philgas Business Control Workshop will be held in your neighborhood. Any LP-Gas dealer can attend the Workshop. Call or write for full information. No obligation.

Other Benefits Enjoyed by Franchised Philgas Dealers

1. Phillips Technical Service gives you expert help on your individual operational problems.

2. Philgas Consumer Advertising . . . radio and farm publications . . . helps you sell more Philgas.

3. Cooperative Advertising Plan includes newspapers, radio, TV, signs and other approved forms of advertising.

4. Sales Promotion Aids are available. Streamers, point-of-sale displays, window signs, mailing pieces.

*Philgas is the Phillips Petroleum Company trademark for its high quality LP-Gas.

5. Philgas Planned Delivery System helps you make the best use of transportation equipment and manpower.

6. Even Payment Plan helps both the consumer and the distributor.

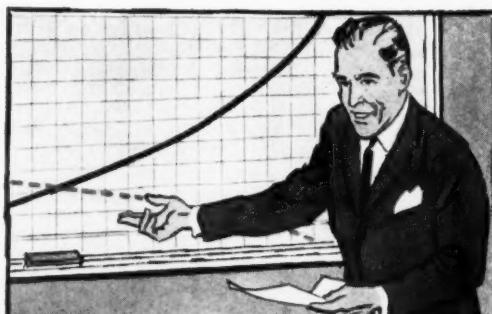
7. Adequate supply is assured at all times. Phillips is the largest producer-marketer in the field with modern storage facilities, pipelines and tank car fleets for dependable deliveries.



The Workshop is definitely not a "Sales Meeting". It's a unique Phillips service planned to help LP-Gas dealers, big or little, get the most profit out of every gallon sold.



Philgas "Planned Delivery" system reduces cost of delivering LP-Gas. Shows dealers how to use trucks and personnel at maximum efficiency. More convenient for customers, too.



By stopping "profit leaks", by speeding turnover, by analyzing typical problems, the Philgas Business Control Workshop can help you increase your profits.

PHILLIPS PETROLEUM COMPANY, SALES DEPARTMENT, Bartlesville, Oklahoma

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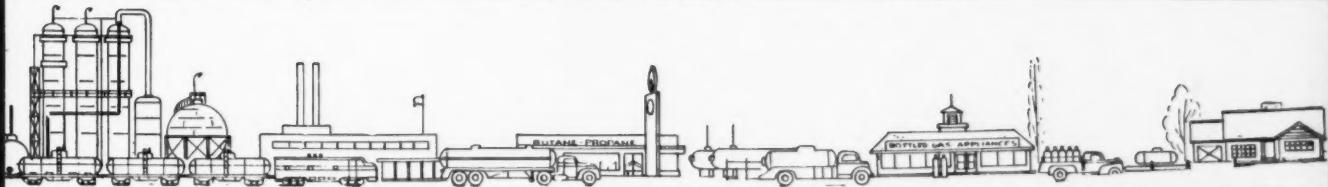
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ATLANTA, GA.—1428 West Peachtree Street,
CHICAGO, ILL.—7 South Dearborn St.
COLUMBUS, OHIO.—395 E. Broad St.
DENVER, COLO.—1375 Kearney St.
DES MOINES, IOWA—6th Floor, Hubbell Bldg.

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OMAHA, NEB.—3212 Dodge St.

RALEIGH, N. C.—401 Oberlin Road
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TAMPA, FLA.—3737 Neptune St.
TULSA, OKLA.—1708 Utica Square
WICHITA, KAN.—501 KFH Building



HIGHLIGHTS



The largest independent company specializing in natural gas and natural gas liquids" was formed February 9 when Texas Natural Gasoline Corp. (Tulsa) merged with Union Oil & Gas Corp. of Louisiana (Houston, Texas). Texas Natural extracts, transports, and markets (to independent wholesalers) LPG and natural gasoline. Union is one of the largest independent oil and natural gas producers. Both operations will maintain their present headquarters and management staffs. Union President Richard T. Lyons is president of the new firm while Texas Natural President John T. Oxley is executive vice president. Oxley says the merger "will augment our LPG production substantially."

First construction contract on the Midcontinent Eastern (LPG) Pipeline was awarded to Cal-Metal Pipe Corp. of Louisiana. The firm will build a portion of the line, which will begin in Texas and end in Minnesota and Wisconsin. Starting and completion dates have not been announced.

Approval of the largest budget in its 29-year history was one of the actions taken by the LPGA board of directors at its winter meeting February 4 in New Orleans. A budget of \$517,179 was authorized for the fiscal year that began March 1. An important operational change may result from the meeting. Planning for the future scope and activities of the LPGA is to be placed in the hands of a reorganized Planning & Organization Committee, if a proposal by W. R. Sidenfaden and C. O. Russell is ratified by members. The reorganized committee would include key elected officers, two past presidents, and spokesmen of occupational groups within the industry. In other actions, the board created a special study to promote LPG as truck fuel, set its 1961 convention for April 30-May 3 in Chicago, and added 154 members to bring its total to 2962.

National LP-Gas Council moved from downtown Chicago to a suburban home March 1. Twice as large as previous quarters, the new office is at 1515 Chicago Ave., Evanston.

Nearly 107 million gas appliances are in daily use in U. S. homes, according to latest estimates made by the AGA. This total, upped by 4 million in 1959, is divided among 39 million customers, 9 million of whom are on LPG. Heating units total 42.4 million, including 11.950 million central heating systems, 23.850 million space heaters, and 6.575 million floor and wall furnaces. Totals (in millions) for the other gas appliances are: gas ranges, 33.450; water heaters, 23.900; refrigerators, 3.325; clothes dryers, 2.875; incinerators, 0.525; gas lights, 0.300; and central air conditioning systems, 0.027.

Marketer expansions were recently announced by four firms. Pyrofax Gas Corp. (Whippany, N. J.) opened new bulk plants in Upper Sandusky, Ohio and Wolfeboro, N. H. and a new cylinder plant at Litchfield, Conn., giving it 117 cylinder-filling and bulk plants. . . . Petroleum Securities Corp. (Bluffton, Ind.) bought V-T Gas Corp. of Francesville, Ind., thereby adding 4000 customers and 4 million gal. per year to the Petroleum Securities-Blue Gas Flame Corp. systems. The sister companies operate 24 bulk plants in five midwestern states and six pipeline systems in Florida. . . . Superior

Continued on next page

Continued

HIGHLIGHTS

Propane Ltd. (Toronto) purchased the carburetion division of Bescom Corp., Montreal, giving it "complete carburetion service for the province of Quebec." . . . White River Propane Gas Co. (Batesville, Ark.) bought Rowe Gas Co. of the same town. . . . California Liquid Gas Corp. (Sacramento) bought Cities Fuel Corp. of Fresno, an extensive wholesaler in the San Joaquin Valley.

Marketers on the stock market--Suburban Gas (Pomona, Calif.) filed an application for listing with the New York Stock Exchange and announced plans to also list on the Pacific Coast Stock Exchange. Giving effect to its recently announced two-for-one stock split, the 73,000-customer, 117-plant firm listed 1,193,682 \$1 par value shares outstanding. . . . California Liquid Gas Corp., which completed its first public financing in October, has--for the first time--released its sales and earnings figures. With 28 subsidiaries, the company's last half 1959 sales were up 41.2 percent (over the same '58 period) to \$4.38 million and its earnings were \$341,000, or 92 cents per share.

Postscripts to BPN features--"How can we help prevent trailer fatalities?" (Feb. '60) indicated that improper venting was a partial cause of the recent trailer tragedies. Now, the Gas Vent Institute has announced "the first in a series of bulletins dealing with safe, modern methods of gas vent installation". . . . "Get Active in Politics" (Jan. '60) mentioned the U. S. Chamber of Commerce "Action Course in Practical Politics." From the Chamber comes word that discussion leader's kits are available at \$12, participant's kits at \$6. . . . "Natural Gas Invasion" (Sept. '59) was a report on what the coming of natural gas would mean to Florida. It has meant a utility-city battle in Miami, where the City Commission ordered a halt to the multi-million-dollar expansion of the Houston Corp. because the firm refused to let the city see its books during a rate argument.

"A true industry first," is the direct-fired 25-ton gas absorption cooling-heating unit unveiled in early February by Arkla Air Conditioning Co. Called the DF-3000, it's "the first medium and large tonnage absorption unit ever to provide both cooling and heating."



CURRENT L.P. GAS & L.R. GAS PRODUCTION & INVENTORIES

(A.P.I. figures - in thousands of gallons)

	Propane	Butane	Bu-Pro Mix	Iso-Butane	Other Mixes	Total LPG	Total LRG
Production (U.S.)							
Jan. '60	379,517	193,861	48,608	57,294	74,071	753,351	262,444
Jan. '59	321,725	158,516	60,817	48,586	48,559	638,203	212,615
Inventories (1-31-60)							
Zone A	10,880	2,304	16	—	10	13,210	7,193
Zone B	55,845	4,395	—	254	1,013	61,507	11,906
Zone C	47,080	30,446	1,203	5,103	—	83,332	8,834
Zone D	63,455	5,523	13,294	1,551	184	84,007	916
Zone E	76,345	52,465	629	9,829	20,198	159,466	39,451
Zone F	165,907	33,274	1,137	19,571	52	219,941	794
Zone G	4,239	707	8,871	—	10	13,827	846
Zone H	1,270	352	143	242	50	2,057	25,931
U.S.	425,021	129,466	25,293	36,550	21,517	637,847	95,871
U.S. (1-31-59)	290,304	84,071	23,133	36,805	3,932	438,245	80,236

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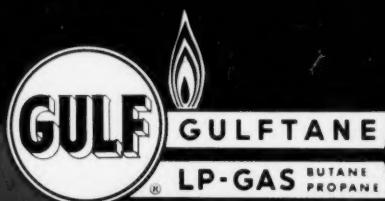


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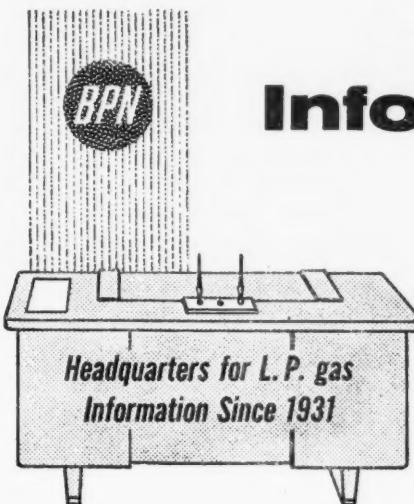
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Information Desk

*Why frost will form on regulators . . .
LPG is too often considered a cure-all
for all engine troubles . . . A reader
comments on thermocouple failure.*

Two reasons why frost will form on regulators

Israel

One of our big customers is using LPG at the average rate of 15 gal. per hour, which in certain cases may reach up to 25 gal. per hour at vapor state.

The LPG in use is a mixture of 25-35 per cent propane, 65-75 per cent butane, average specific gravity 0.550-0.560, and vapor pressure of 60-70 psig at 60 deg. F.

The average temperature during the winter season (November-February) is 45-50 deg. F., but in the early morning hours it may also be 26-30 deg. F.

The gas installation at the 1st stage part consists of two 1000-gal. (U.S.) system tanks, coupled in a common 1 in. manifold, a pressure regulator set at 25 psig, main gas service line, 1 1/4 in., 240 ft. long, and ends with four low pressure regulators.

In cold weather we have some trouble with the normal gas supply. Last winter we installed a vaporizer, which is located some 30 ft from the nearest tank, at lower level than the tank's bottom.

The vapor line from top of tank to top of vaporizer is 1 in.

The liquid line from tank to bottom of vaporizer is 1 1/2 in.

The gas service line from the vaporizer to the intersection with the 1 1/4 in. main service line: 2 in. size, 25 ft. long.

The distance from the intersection to the low pressure regulators is 210 ft. long (1 1/4 in.)

Last winter on a chilly morning (26 deg. F.) the man in charge at

the factory found the four low pressure regulators covered with ice and also the inlet and outlet pipes 3 ft. upstream and downstream from the regulators covered with frost.

He used a paraffin stove to warm the system and you will realize that a fire broke out in a couple of seconds.

Please note that the freezing occurred while the vaporizer was running. The condition of the vaporizer was "HOT" and the regulators were set at 12-15 psig.

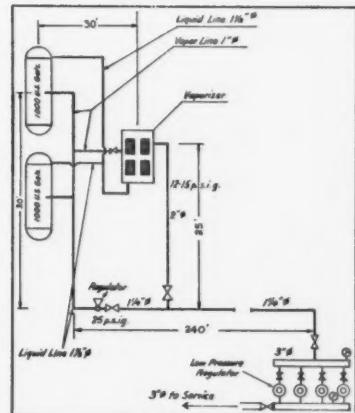
The second stage system after the four regulators is working with low pressure LPG—9-14 in. wc.

During the summer season there are no complaints whatever about the functioning of the gas servicing system.

Taking into account the maximum rate of 25 gal. per hour, the main gas line size and length (1 1/4 in. x 210 ft) the minimum temperatures and the other distances, we would like to ask you the following questions:

- Is the main gas service line properly sized?
- Is the vapor line—top of tank to top of vaporizer—properly sized?
- Is the liquid line—tank to bottom of vaporizer—properly sized?
- Is there any possibility of liquid escape into the main service line?
- Do you consider a liquid trap at the end of the 1 1/4 in. pipe before the low pressure regulators desirable?

R. R.



There is a question in our mind regarding the vapor pressure of 60-70 psig at 60 deg. F. Aren't these pressures at 100 deg. F? The Handbook Butane-Propane Gases p. 42, Fig. 1, shows vapor pressures at 60 deg. F as follows:

Propane 25 per cent—Butane 75 per cent=29 psig
Propane 30 per cent—Butane 70 per cent=38 psig
Propane 35 per cent—Butane 65 per cent=42 psig

The above is based on normal butane. If the butane in the mixture is iso-butane then the pressures will be higher than you have listed.

In your fourth paragraph you state the regulator is set at 25 psig, and later you state the regulators at the vaporizer are set at 12-15 psig. I expect that you close the valve at the discharge of the regulator when the vaporizer is operating. If not, the gas would continue to feed from the tanks even though the vaporizer is hot. The vaporizer burner is con-

This you'd expect... only from Fisher!

A COMPACT



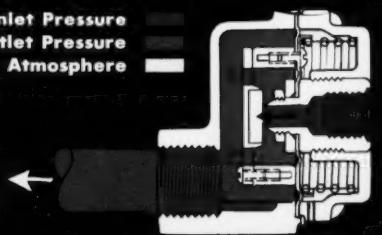
"MITEY JOE"

R300

SIMPLICITY OF DESIGN AND OPERATION

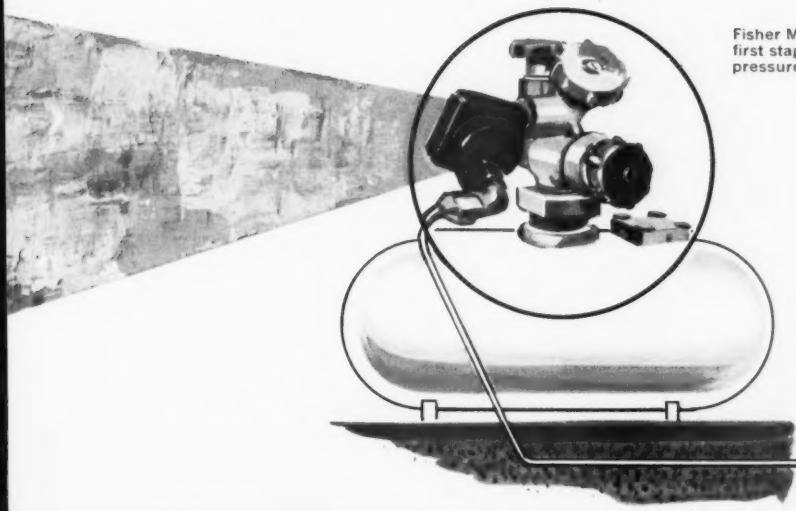
Inlet pressure (red) enters through orifice to downstream system. The outlet pressure (blue) acts against the diaphragm, opposing the spring, and causing the seat assembly to move toward orifice. Thus rate of flow is varied to control downstream pressure.

Inlet Pressure
Outlet Pressure
Atmosphere

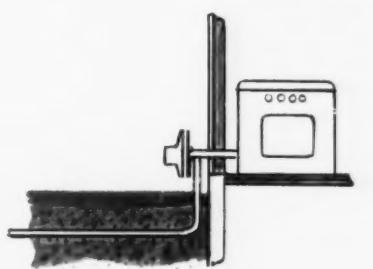


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that obsoletes once and for all...
all other first stage regulators



Fisher Mitey Joe, R300
first stage regulator reduces
pressure to 10 p.s.i.



Second-stage regulator
Fisher Type 932
reduces pressure to
11" water column.

LOW COST

Your unit cost for the Fisher R300, Mitey Joe, is approximately 25% less than that of conventional type first stage regulators. This is made possible by the internal simplicity of the regulator (only two moving parts).

ECONOMICAL INSTALLATION

This compact regulator can be mounted on its own piping connections, with absolutely no need for a mounting bracket. It is constructed entirely of corrosion-resistant materials, and its small size (only 2½" square and 2" long) makes it possible to use a smaller size hood.

FREEZE PROOF

The freezing problem is brought to an absolute minimum because of the streamlined design of the regulator and the large orifice used in the construction.

ACCURATE

The combination of the R300 and a good quality second-stage regulator, such as the Fisher Type 922 or 932, is your assurance of a system that provides the high accuracy required for proper appliance operation.

NEVER NEEDS ADJUSTMENT

The R300 first stage regulator is preset at the factory to deliver 10 pounds outlet pressure. It never requires field adjustment and can't be "monkeyed with".

HIGH VOLUME CAPACITY

The Fisher R300 is designed to operate with any second-stage regulator having capacities up to 1,250,000 btu/hr (500 cfm propane). It has ¼" NPT inlet by ½" outlet connections.

IF IT FLOWS THROUGH PIPE ANYWHERE IN THE WORLD... CHANCES ARE IT'S CONTROLLED BY...

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Marshalltown, Iowa / Woodstock, Ontario / London, England

BUTTERFLY VALVE DIVISION: CONTINENTAL EQUIP. CO., CORAOPOLIS, PA.



SINCE 1880

Letters • Continued

trolled by a thermostat in the vaporizer chamber, and therefore would be warm whether any gas is supplied from it or not. Check the lines downstream and see if they remain warm.

There are two reasons why frost may form on the secondary regulators. Condensation may take place in the long $1\frac{1}{4}$ in. line and when it goes through the secondary regulators and re-vaporizes, frost is formed due to the refrigerating effect through the regulator valve.

Vapors expanding through the secondary regulators also cool down as they expand through the regulator valve. If the vapors are near freezing when they reach the secondary regulator the expansion through the secondary regulator may cause enough cooling effect to cool the metal below freezing. (See Table 1, p. 323 Handbook B-P Gases.)

The frost, of course, is formed from the moisture in the air as it contacts the cold metal. If the gas vapors are free of moisture it will not cause any trouble in the operation of the regulators, unless the frost should plug the vent opening.

The pipeline sizes all seem ample. It is possible that liquid can be getting through the vaporizer if the float operated safety valve is not holding, since the vaporizer is located below the liquid level in the tank. However, the vaporizer is so large compared to the demand that it does not seem possible for this to happen.

The $1\frac{1}{4}$ in. vapor line is large enough so it may be possible for you to reduce the primary regulator pressure settings to 10 psig or less. This will reduce the possibility of recondensation in this line before the gas reaches the secondary regulators.

I think some of the above information should help you correct the problem you have encountered. A small drip trap to drain out oily ends may be useful at the end of the $1\frac{1}{4}$ in. line.

Where was the gas leak that caused the fire, when the manager tried to melt the ice with the paraffin stove? There should have been no gas escaping to cause a fire, unless there was a joint leaking or liquid had recondensed and was trapped in the low pressure line. When heat was applied it could have caused the relief valves in the secondary regulators to relieve vapors through the vents.

If vapors are drawn from the top of the tank during warm periods, fractional distillation occurs and reduces the propane concentration.

When it does get cooler, condensation is more likely to occur in the line ahead of the secondary regulators. It is advisable to use the vaporizer continuously during the colder weather, and at least periodically during the warm weather to keep heavy ends from collecting in the storage tanks.

—Ed.



Economics of automotive conversions

Ohio

Several years ago I learned of the highly successful use of bottled gas as an automobile fuel. It appears to have possibilities as a business venture.

Could you possibly supply me with any literature on this subject as I'm interested in learning of the following:

- A. Method of converting fuel system.
- B. Parts necessary.
- C. Cost of conversion (parts and labor).
- D. Comparison of costs — per mile, between fuels.
- E. Problems uncovered—to date.

G. W. H.

We are enclosing some descriptive information and reprints of stories from *BUTANE-PROPANE News* that describe the equipment needed to convert internal combustion engines to L. P. gas. These stories tell about the economies that can be realized with L. P. gas as a motor fuel.

Specially designed and constructed equipment is used to serve L. P. gas to the engines. It includes the fuel tank with its special valves and gauges, equipment to convert the liquid to vapor and admit it to the motor intake system. Other component parts are listed and described in the enclosed information.

The National Fire Protection Association pamphlet No. 58 lists safety practices which must be followed when installing and operating motor vehicles on L. P. gas. Their address is: 60 Batterymarch Street, Boston, Mass.

The cost of conversions, including fuel tank, component parts and labor will vary considerably depending on the size of the vehicle. Installation costs range between \$175 on fork lifts and similar material handling equipment and \$400 or \$500 on large trucks and buses. The fuel tanks are a major item of expense in these conversions because they are fairly heavy

pressure vessels; not the light, thin wall tanks normally used for gasoline and diesel fuel. The above is an initial installation cost. Tanks, converters, carburetors and other components can be removed and installed on new vehicles as the old vehicles wear out and are replaced. The usual transfer cost includes labor and only a few minor parts which may be needed to adopt the equipment to a new vehicle similar to the old one. When this is considered, the cost is less formidable.

The cost of fuel per mile, compared to gasoline is also variable because of the wide range of prices throughout the country. It can be reasonably expected that mileage will not drop more than 10 or 15 per cent from that obtained on gasolines. In some cases users observe little difference. Industrial companies, contractors and others who buy gasoline in bulk lots and dispense into their own equipment sometimes find "mileage" improves since L. P. gas doesn't find its way into "stray" vehicles.

L. P. gas is not especially recommended as a fuel for automobiles unless the automobile is driven many thousands of miles per year.

It becomes a profitable conversion then because savings in fuel cost, oil and maintenance will soon offset the cost of the conversion equipment. The L. P. gas equipment can be transferred to new cars as they replace the old ones and the initial cost spreads over several cars.

At one time fuel supplies were a problem but now there are stations throughout the country where L. P. gas motor fuel can be obtained. They are, of course, not as prevalent as gasoline stations but automobile drivers soon come to recognize them and learn where they can obtain the fuel.

The collection of motor vehicle fuel tax is the same as for gasoline in most states. Some states have peculiar systems of administering the collection of motor fuel tax. Local inquiry will reveal the manner in which it is handled.

L. P. gas has received so many glowing reports that it is too often considered a cure-all for all engine troubles. L. P. gas requires a well-maintained ignition system. When gasoline will "get by" with poor operating results on a rundown and sloppy ignition system, L. P. gas may not. L. P. gas has a narrower flammable mixture range and a higher ignition temperature than gasoline and needs a good hot spark for satisfactory ignition. After a conversion is made and the vehicle does not perform like a new unit, L. P. gas is

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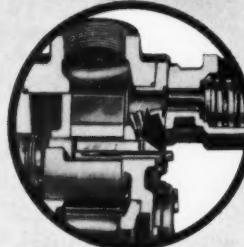
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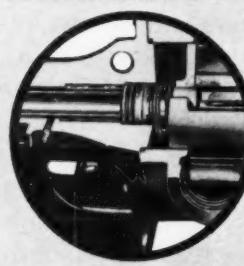
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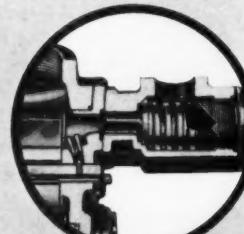
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SAVE YOU MONEY

RETURN-TO-TANK VALVE . . .

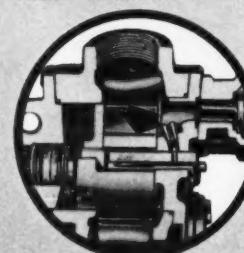


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The original Viking "gear - within - a - gear" construction means positive delivery, longer pump life, simple servicing and lower cost. Only two moving parts—rotor and idler.

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20 lb.—40 lb.—60 lb.—100 lb. Cylinders

Complete Line of Accessories for Single or Double Hook-ups . . . Regulators—Valves—Racks—etc. Everything that is needed for complete Bottle Gas Installation.

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Letters • Continued

likely to be blamed for such remote items as flat tires. About 95 per cent of faulty operation at first blamed on L. P. gas will be traced by a competent mechanic to some cause not in any way related to the L. P. gas.

We suggest you contact some of the manufacturers of L. P. gas carburetion equipment for additional information on costs of conversion and fuel consumption.—Ed.



Reader's comments on thermocouple failure

Please refer to "Information Desk" page 28, January 1960 issue of BPN.

May I add some of my findings as to reason for thermocouple failure as asked by W. F. of Iowa? If it is actual thermocouple failure, the pilot burner may be over-gassed. So . . .

- a. Check regulator for correct operating pressure.
- b. Check regulator for creep (build up of pressure with all burners off except pilot burner.)
- c. Is the piping undersized? Small sized lines might require 17 in. to 19 in. lock-up pressure to deliver 11 in. when appliances are operating. If this is so, the pilot is overpressured when burners are off.
- d. Is the pilot orifice the right size?
- e. Did the "Joe" who was there before you enlarge the orifice?
- f. Compare the old thermocouple with a new one. If the part that is in the flame is distorted or cracked—the pilot is overpressured or overfueled.

If the water heater is equipped with a Unitrol or similar control, remove the thermocouple lead and insert a screwdriver. Snug this screw tight. It is an electric connection and if loose can cause pilot outage.

B. T. Warner
Quicks Lane
Katonah, N. Y.

Thanks for your letter and the information you included in it regarding the troubles our reader in Iowa was having with a pilot.

We appreciate receiving these items so we can pass them along to our readers.—Ed.



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If you are in the area shown on the map, or on the fringe, you, too, may take advantage of Sinclair's Truflame LP-Gas program designed to make more profits for LP-Gas marketers.

Sinclair's expanding program includes more

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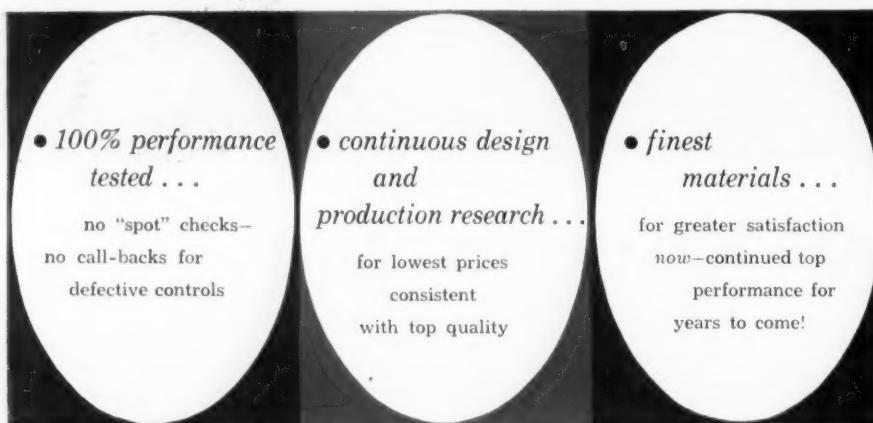
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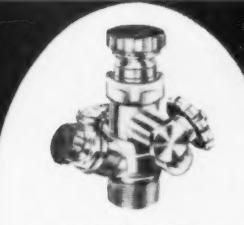
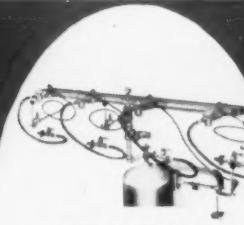
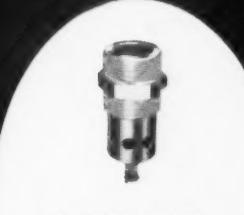
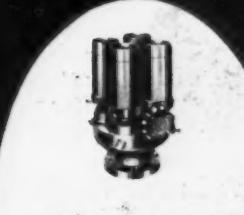
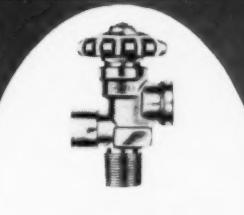
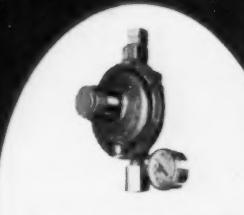
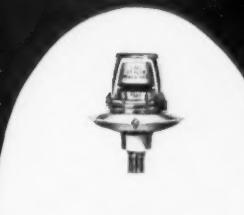


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WASHINGTON REPORT

by NEIL RECEIMBAL, *Washington Editor*



★ Co-ops blast way into non-farm markets

Sales by REA co-ops jumped 15.5 per cent last year, the REA reports. Sales totaled 25.3 billion kw hours, up from 21.9 billion the previous year. The co-ops added 139,000 new consumers to their lines (80 per cent of them nonfarm users), some 10,000 more than in the previous year. Loans totaling \$172 million were approved in 1959: Almost three-fourths for distribution; 27 per cent for new generation, and 1.5 per cent to finance consumer purchases. The cost per-kw to consumers dropped a little, and average bills rose slightly.

★ Lower freight rates for South approved

Lower freight rates on L. P. gas by railroad tank cars from the Southwest to the Southern areas of the country, averaging 8 to 13 per cent, have been approved by the Interstate Commerce Commission. However, the ICC refused to approve a railroad proposal to restrict routes, which leaves in effect existing storage-in-transit arrangements. (Details page 81)

★ Trustbusters seek to forestall 'illegal' mergers

Justice Department trustbusters are stepping up their efforts to catch potentially "illegal" mergers before they're consummated. They're emphasizing preventive activities in the hope of avoiding the long, involved legal fights to break-up mergers once two or more firms have been fused, as in the Gulf Oil-Warren Petroleum case. Trustbusters among other things have been working closely with the Securities & Exchange Commission, using proxy and other information filed by publicly-held stock firms with the SEC.

★ Single tax for co-ops winning favor

Chances look good this year for closing the tax loophole which permits farm and private cooperative firms to gain a cost advantage over normally-constituted business. President Eisenhower is again asking for a single tax. Leaders of the powerful Ways & Means Committee favor a slightly different approach—but a single tax too. (Details page 76)

★ Are you exempt from the minimum wage law?

L. P. gas dealers are exempt from the minimum wage-hour law except when more than 50 per cent of their sales are across state lines or more than 25 per cent are outside the government's new definitions of "retail sale." Unless both of the conditions for exemption are met, the dealer must pay all employees at least \$1 an hour and time and a half for more than 40 hours work a week. (Details page 82)

★ Mutual banks for making loans to co-ops urged

President Eisenhower is now proposing establishment of a "mutual banking system" to provide loans for REA borrowers. In his budget message, he backed this scheme as a means of taking the burden of lending money to co-ops off of the government. The taxpayers would provide the capital to set up the banks, but the debt would eventually be liquidated and they would become self-sufficient. (Details on page 82)

★ Production and price increases, unemployment drop forecast

Higher prices, more jobs. That's the outlook for 1960 in a nutshell. Both industrial prices and consumer prices are headed for a 2 per cent rise. Unemployment, now about 5½ per cent of the work force, will fall to about 4 per cent. Production, overall, should be up by about 5 per cent over this year's records.

In celebration of our 60th year of world-wide progress . . .

A Genuine Coleman gas-lite

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Here's the plan. As an anniversary salute, we're making it possible for you to offer a genuine Coleman Gas-Lite to your customer with the installation of any Coleman central furnace, wall heater, floor furnace or air conditioner. It's an offer your prospects will go for when you give them the lamp as a bonus for buying now! For more information, use the coupon below or call your Coleman distributor for your complete program kit containing full details — right away!



Coleman's Gas-Lite promotion will be announced to home owners in the March 26 Saturday Evening Post



Best selling tool of all — you offer this exclusive \$500 bond with every unit you sell

Also makers of famous Vit-Rock water heaters, Decorama space heaters, Coleman lanterns, camp stoves, jugs and coolers—mobile home heating and air conditioning

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• The Coleman Company, Inc., Wichita 1, Kansas

• Quickly send more information on your Gas-Lite promotion.

• Name _____ Title _____
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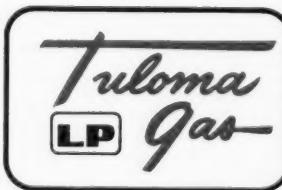
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* Tuloma is expanding too much to fit properly on just one page!

Beyond the Mains

By WILLIAM W. CLARK • Editor



Opportunity down on the farm

Figures, they say, don't lie but liars figure. So do sharp salesmen. It's high time sharp salesmen in this business were figuring themselves a bigger slice of the farm market.

It's going to take sharp figuring and a sharp pencil. And it will take a little work with figures to show why.

On the face of it, the recent Census Bureau study on the farm population makes it appear that one of our prime markets is shrinking, little by little, but inexorably. Things (as politicians frequently remind us) are not so good down on the farm. First of all, the old place is beginning to look deserted. Back in 1910, one out of every three Americans lived there (what a market!). By 1950, half of them must have seen Paree or something, because they were long gone, and the ratio was down to one out of six.

Today it's one out of eight.

Percentages could be misleading, particularly this one, in view of our "exploding population." But even on a straight numerical basis, the picture is not a happy one. In 1910, 32 million people lived on farms, and in 1950, 25 million did; today, the population has shrunk to 21 million.

Think, if you're in the mood for a good cry, how much of a market we've lost in 10 years. More than one out of every seven people!

What's more, farm income will be down in 1960 from an index figure of 112 to 110. Prices are expected to slip from 1959's index of 89 (1947-9=100) to 86.

This situation is going to call for some belt cinching. The farmer's going to be in no mood for spending money. Not only is he going to cut operating expenses, but he is also going to trim

expenditures for capital goods. The Census Bureau predicts he'll trim \$600 million off 1959's capital goods budget.

But if there's one lesson that the recent recession (remember it?) reminded us of, it was that there's opportunity in adversity. The biggest sales are going to the man who can show his prospect how to invest in economy-producing devices.

If the farmer is spending less, the USDA figures show he's actually spending more for mechanization. This, of course, is a primary reason why the farm population has dwindled.

His pocketbook is open to those who know how to get at it. Our friends in the REA's have shown us the way.

"More and more farmers are using electricity to handle their chores automatically," declared REA Administrator David Hamil in his year-end report. And the report bears this out in bold-face type. In 1959, only 139,000 customers were added to REA lines (population saturation is now close to 100 per cent). This represented an insignificant increase of 3.2 per cent. But—power usage jumped 15.5 per cent!

The co-ops, then, are making the most of adversity on the farm. They're sharpening their pencils and showing the farmer how he can save more by buying more. The tighter he cinches his belt, the more cost-conscious he'll become. The more cost-conscious he becomes, the better your market for tractor conversions, grain drying equipment, flaming equipment, brooders, and all the other modern devices that can improve efficiency on the farm.

Don't forget, he's still going to spend \$5.2 billion for capital goods in 1960. If you're armed with facts, it shouldn't be too hard to get your share.

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Helping dealers to meet local problems, or to offset national trends is of paramount interest to Texas Natural. We urge you to let us roll up our sleeves and go to work on your individual needs . . . and the time to begin is NOW!

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ENTERPRISE BUILDING TULSA, OKLAHOMA





Allen Butane has five stores. This one is in Grapevine, Tex., approximately 20 miles from the twin metropolises of Dallas and Fort Worth.

Here's a Sales Incentive Plan that works!

KEN KIRKPATRICK

●
In every management survey, one problem, employee compensation, consistently ranks among the leaders. It's especially perplexing to LPG dealers. Here's how one dealer is solving this perennial problem.

● SALES incentive plan developed and improved over a ten-year period has helped Allen Butane Co. keep sales volume high while holding sales costs in proper proportion. It also seems to do a good job of keeping 18 sales people happy.

Headquartered in Denton, Tex., Allen Butane has a total of five stores. The other four are in Grapevine, McKinney, Sherman, and Decatur. All these locations are within a 42-mile radius of Denton. Included in that radius are the Oklahoma border to the north and the twin metropolises of Dallas and Fort Worth to the south.

Each of the stores has a manager and an office girl. The three larger ones also have an appliance salesman. Serving the customers in these five localities are 15 gas salesmen. Never called drivers or delivery men, the gas salesmen are hired for their sales ability as well as their mechanical aptitude to service LPG accounts.

Allen Butane's employee compensation plan combines the advantages of salary and commission. H. R. ("Buck") Pemberton, vice president in charge of sales personnel, says these advantages include:

Salesmen are encouraged to keep customers' tanks full all year

1. Salesmen earn increased income through increased sales.
2. Salesmen are kept on the job full time.
3. The company can emphasize the desired area of sales, either LPG or appliances.
4. The plan is kept flexible to meet changing business conditions.
5. The ratio of sales cost to sales volume is kept well balanced.
6. Bad accounts are held to a minimum.

The plan developed slowly. It started in 1949. Previously, salesmen had been on a salary, plus $\frac{1}{4}$ cent per gal. commission on sales above 10,000 gal. per month. The first plan raised the salary and commission rates so that sales made in the summer returned about twice the commission rate of those made in the winter. This plan was continued until 1952, when the salary was again increased — to attract the type of man the firm felt was needed to produce adequate sales. At the same time, the winter commission rate was set at 0.9 cents per gal., while the summer rate became 1.15 cents.

Commission rates on appliances during most of this time approximated 2 per cent for turning in prospects who later made purchases, but went to 4 per cent if the man actually closed the sale himself. Later, a flat 1 per cent of appliance sales in each gas salesman's territory was adopted to avoid conflicts between gas salesmen and store appliance salesmen. Appliance sales efforts by gas salesmen then dropped. So, the present plan was put into effect.

The present version went into effect Sept. 1, 1958. It is concisely detailed in the following memo, which Pemberton sent to all store managers and gas salesmen:

To: Store Managers and Gas Salesmen
From: H. R. Pemberton
Subject: Salary — Bonus Plan
1. Beginning Sept. 1, 1958, salaries of gas salesmen will be \$300 per month for full-time service.

2. Until April 1, 1959, present commission rates on gas sales will apply (April 1 to Oct. 1 — 1.15 cents; Oct. 1 to April 1 — 0.9 cents per gal.)* Beginning April 1, 1959, the commission rate on gas sales will be changed to \$10.50 per thousand gal. and will remain the same for the full 12 months. If the gas salesman fails to make his salary for any month or series of months, such deficits will be carried forward and no more bonus on gas sales will be made before such deficit is made up.

3. Any deficits accumulated up to April 1 each year will be cancelled and all gas salesmen will start over.

4. Gas sold to drilling rigs, filling station units, and gins will pay \$5 per thousand toward earning a bonus.

5. In addition to gas sales earnings, a gas salesman will be paid a commission of 3 per cent on all merchandise sales he actually writes up. He must make all arrangements including signatures on notes. The purchaser must live in the salesman's own territory or in the town where the local store is situated.

6. Adjustments in both territory and personnel will be made so that within as short a time as possible each route will sell a minimum of 342,000 gal. a year. At the rate of \$10.50 per thousand, it will require 342,000 gal. for a salesman to earn his salary. Each gas salesman must work to keep his sales above this figure.

7. As an extra bonus, each gas salesman will be allowed \$1.50 per 1000 gal. as an allowance for bad accounts. Bad accounts are charged off July 1. If a salesman's charge-offs amount to less than \$1.50 per 1000, he will draw the difference as a bonus for keeping his bad accounts to a minimum. For ex-

ample, let us assume that a salesman sells 400,000 gal. this year. At \$1.50 per 1000 he would have \$600 in his bonus fund. If his charge-offs amounted to \$400, he would draw a \$200 bonus. This provision of the pay plan will be in effect during a trial period only — July 1, 1958 through June 30, 1959.**

8. Gas salesmen are responsible to the local store manager and are expected to assist with other company activities such as plumbing installation and service work, especially during slack periods. Of course, the larger his volume, the less time the gas salesman will have to help with these other activities.

Many problems encountered in the earlier plan were solved by this new plan.

The \$3600 salary (Item 1) is in reality a drawing account. Unless a salesman earns a commission in addition to this, Pemberton feels the man's truck is not earning the profit it should. Thus far, two-thirds of the gas salesmen have drawn commissions in addition to their salary. All of them also get some appliance commissions and extra bonuses. Average annual earnings of gas salesmen is \$4200. Top salary thus far is \$5800.

The unvarying commission rate on gas sales (Item 2) illustrates the advantage of keeping a compensation plan flexible on a full-year basis. A constant, generous commission rate on gas sales encourages Allen Butane salesmen to keep customers' tanks full all summer long. Customers with full tanks are poor prospects for fly-by-night, cut-rate competition.

The quota deficit cancellation (Item 3) is a morale-builder for gas salesmen. Any man who happens to have a bad year knows that he will be given a fresh start and an opportunity to begin accumulating commissions again.

Making the 3 per cent merchandise commission (Item 5) dependent on the salesman's handling all arrangements simplifies the

* Deferring the new rate until winter was over prevented gas salesmen from making an abnormally high wage for the year ending April 1, 1959, since a high summer rate would have been followed by a high winter rate.

** It has since been extended another 12 months.

payment plan. It eliminates all questions as to how far the salesman's responsibility goes, if he is to receive a commission.

Pemberton says territorial adjustments (Item 6) are made only to make sure that no one makes too little, not to limit income.

"We would not split a territory to keep a man from making too much. We shuffle them around to enable them to give better service and to take on new accounts as their areas grow."

The bad account bonus plan (Item 7) is particularly interesting to Pemberton. This \$1.50-per-1000 gal. allowance setup for bad accounts makes the gas salesman very conscious of customer credit. He knows that charge-offs are coming out of his own pocket. This fact makes him vitally concerned with collecting all accounts. At the same time, he wants to keep the customer happy and keep him so his future sales and earnings will be high.

For the year ending July 1, 1959, half of the gas salesmen drew bad account bonuses. The other half "apparently did not understand the plan, so we shall try it again another year." The biggest bonus was a whopping \$646.42. Of \$1298 outstanding on April 1, this salesman collected all but \$64. Another cut down his delinquent accounts from \$1523 to \$58, but did not earn as large a bonus, since he had not sold as much gas.

"This system can make a big difference in the attitude of both the salesman and the customer," Pemberton said. "The customer may not care much whether Allen Butane loses the money, but the gas salesman who calls on him is usually considered a friend. When the salesman can look a customer in the eye and honestly tell him that the money comes out of the salesman's own pocket if not collected, collections become much easier to make."

One result of this plan is that the company keeps customers by keeping their accounts current, thus avoiding the ill feelings that arise over debt collection. This also enables the salesman to deliver larger amounts of gas, thus reducing time and travel costs.

An additional inducement that

helps keep collections current is a 1 cent per gal. discount offered customers who pay their accounts by the 10th of the month. This discount is included in the price to the customer.

Some problems remain. Although the plan has many advantages, it also has some disadvantages.

One difficulty that sometimes arises is adjusting territories fairly when some major change occurs. Usually Pemberton tries to make such territorial adjustments when a new man takes over a territory. Unfortunately, this is not always possible. A difficult territory - adjustment problem arose recently when a small town was placed on a natural gas distribution system.

"We just had to move men around and adjust territories the best way we could," Pemberton said. "For a while I thought we were going to lose one of our best salesmen, but he was soon able to get his route back up to the volume he had when the change occurred."

Another disadvantage comes in controlling accounts receivable. Here the company is forced to rely on the gas salesman's judgment. His judgment, of course, is made more acute by the bad account bonus.

"Our results justify the plan," Pemberton concludes. "We feel that a sales-incentive plan is a must. It's the best way to get a man to produce maximum sales from his territory. Certainly we haven't found all the answers, but the plan we're using has been a tremendous help to us. As fast as we can improve it to help our salesmen earn more money — for himself and the company — we'll do so."

"Meanwhile, we think our plan does a good job of encouraging our men and increasing our sales. We have no plans to change the salary and commission rates. Our store salesmen also seem to be satisfied with their present earnings."

Store salesmen average \$4400 with the highest man getting \$5000. They work on a \$200 per month base plus 4 per cent of appliance sales and a \$50 monthly car allowance. ■

Allen Butane finds contests also effective

SALES contests for company personnel are another form of promotion which Allen Butane uses effectively.

One such event was a "Bat 'em Home" contest which ran for 14 weeks. Employees were divided into two divisions, Pitchers and Catchers. Pitchers were awarded points for prospects' names turned in. Catchers got points for turning these prospects into sales. Winners in the two divisions were awarded three-day plane trips to San Francisco for themselves and their wives.

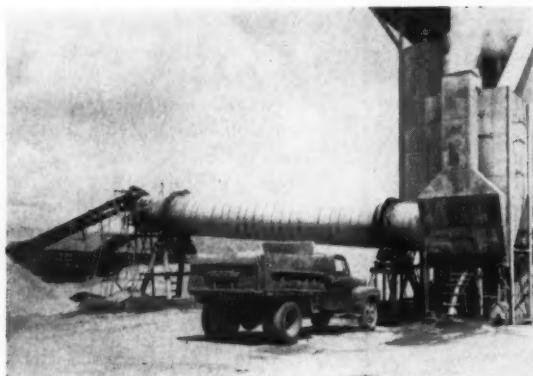
Although the contest successfully boosted sales, Pemberton felt the personal competition created undesirable friction among employees. In some cases, employees who felt that they had no chance to win a prize simply did not make a special effort. As a result, Pemberton has since conducted sales contests only among the five Allen Butane stores.

These contests are on the basis of gas and merchandise quotas which Pemberton sets. Each store competes only against its own quota. Every employee has a personal interest in his store's sales because each employee in a store that meets its quota earns a \$25 bonus. Sometimes separate quotas are set for gas sales, merchandise sales, and average daily sales per store employee. This gives employees an opportunity to earn even larger prizes if more than one quota is met.

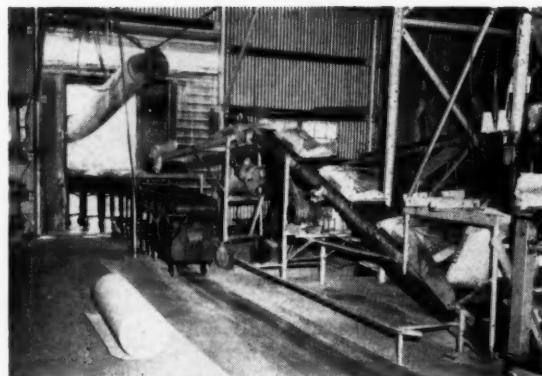
LPG turns a waste product into a saleable item



Six Ellis burners in front end of barrel provide heat, drawn through barrel by a powerful suction fan at opposite end.



The barrel or drum in which butane furnishes the heat for drying fine-grained blasting sand for special market. Barrel is 5 ft in diameter and 30 ft long.



Inside plant, conveyors deliver bagged sand to freight car . . . Large tube above conveyor blows cold air into car to cool sand as it is stacked.

RUEL McDANIEL

TO Thorstenberg Material Co., a gravel producing company located at Columbus, Texas, sand was a liability until LPG came along. Today, the fine stuff is a welcome by-product of the company's quarrying operations.

Thorstenberg mines gravel from five pit locations and sells it to road builders, building contractors, municipalities, and other large-scale users. In the company's "Jay-ray" pit, a lot of sand is mixed in with the gravel, and since it interferes with normal gravel mining and processing it was always considered a nuisance.

Today, however, an LPG-fired heating unit is processing the sand too, and a liability has been turned into a profitable, saleable item. The

sand is in strong demand for sandblasting work. It is particularly favored by contractors for blasting the heavy paint from ships preparatory to painting the hulls.

In the process, the sand, once separated from the gravel, is conveyed through a heavy cylindrical drum which is heated by LPG.

The metal drum or barrel is 5 ft in diameter and 30 ft long. Attached to the inner surface is a series of fins, which lift and scatter the sand as the barrel revolves, forcing the heat through it. The sand is completely dry by the time it reaches the opposite end of the barrel.

Heat is generated by six Ellis burners in the front end of the barrel, directly in front of where the sand enters. A powerful suction fan at the opposite end draws the heat from the burners through the cylinder.

The sand leaves the cylinder at a point just short of the far end. From here it is transferred by con-

veyor belt to an adjacent packaging plant, being carried up to the hopper by a bagging unit. Screens separate the grains into five different sizes before they are poured into 100 lb bags.

The filled bags are carried out by another conveyor belt to storage or to waiting freight cars. At this point, the sand is still very hot. A blower is needed to blast cold air through a portable canvas duct into the freight car.

The plant produces 5000 bags of blasting sand in an eight-hour day, and frequently additional shifts work to keep up with demand for the new product, made possible by the economical use of butane for drying purposes.

The plant utilizes an average of 1600 gal. of fuel every three days. This is supplied from a 3800-gal. tank. Robert R. Wells Jr., manager of Modern Fuels Inc., Garwood, Texas, supervised installation of the burners and the tank, and Modern Fuels supplies the gas.

EXCESSIVE



How safety and comfort control principles are applied to LPG heating systems

BN
EXCLUSIVE

The complex of valves, thermocouples, thermostats, and appurtenant devices used in today's heating systems are described and their relationships to the heating job explained in this second installment in a four-part series. Next month's article will show how standard heating systems can be refined to obtain better performance.

LYLE W. DAVIDSON
Director of Field Education
Minneapolis-Honeywell Regulator Co.

THE least complex method of heating a home is with a space heater. The basic space-heater unit requires no special installation procedures other than gas-line and flue connections. After selecting a suitable location for proper heat distribution, the installer simply connects the gas supply and makes provisions for proper venting. Heat is distributed by direct radiation and natural convection currents which pass through the unit.

The simplest form of comfort control for a space heater could consist of a hand-operated valve in the main fuel-supply line. Moving this valve toward the "open" or "closed" position regulates the supply of fuel to the main burner and, to a limited extent, regulates comfort. To provide safety control, a pilot must be included for

positive main-burner ignition any time gas flows to the burner.

To complete the safety control picture, some means must be provided to shut off gas flow to both the pilot and the main burner should the pilot fail to provide proper ignition. Generally this is accomplished by the combination of a thermocouple, pilot burner, and an automatic - pilot safety shutoff.

The thermocouple (see Fig. 1) is the application of the thermoelectric principle that when two dissimilar metals are joined together at one end (hot junction), and the junction is heated, a small d-c voltage is developed between the unheated open ends of the wire. The voltage developed depends on the type of metals used, the mass of the two metals, and the temperature difference be-

tween the hot junction and the open ends. To provide a complete current path, the open ends (cold junction) are attached to the coil of a small electromagnet.

The hot junction is heated by directing the pilot flame on the tip of the thermocouple. A normal pilot flame furnishes sufficient heat to provide a continuous current flow through the electromagnet which, in turn, holds a small gas valve open. Should the pilot flame become inadequate for proper ignition, not enough current flow will be maintained to hold this small valve open. The closing of this valve stops the gas flow to both the pilot and main burner, and prevents unburned gases from accumulating in the combustion chamber or surrounding area.

The functions of the manually-controlled main gas valve and the safety control, provided by the automatic safety pilot, are often

INSTALLATION-SERVICING

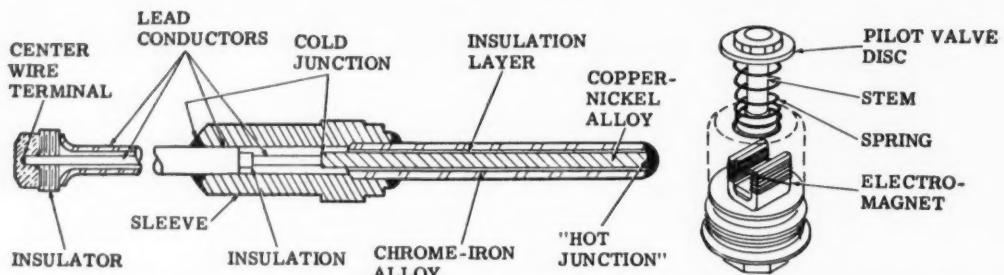


Fig. 1. A typical thermocouple (left) and a pilot safety shutoff valve. The closing of this valve stops the gas flow to both the pilot and main burner.

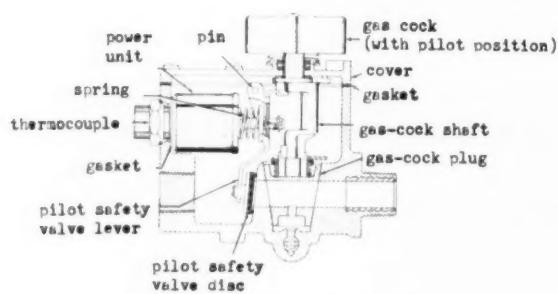


Fig. 2. Above, single manifold unit combining manually controlled main gas valve and safety control.

Fig. 3. Right, self-contained, thermostatic gas valve for automatic comfort control, incorporates a modulating action.

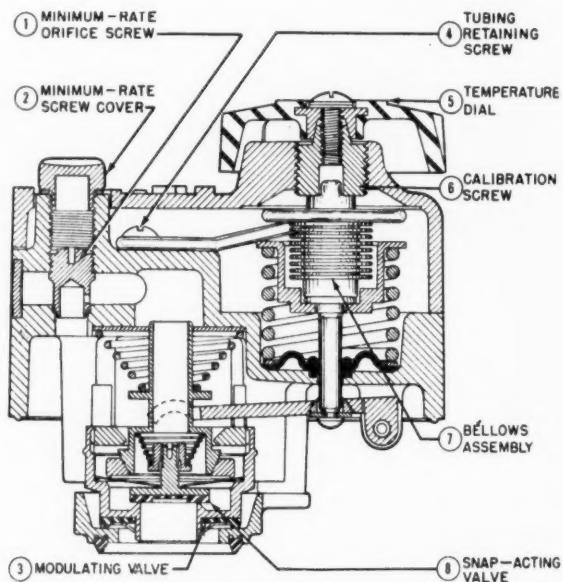


Fig. 4. The control manifold is designed so that the automatic valve can be added to the heating unit merely by removing the plate and placing the thermostatic valve in the proper location on the manifold.

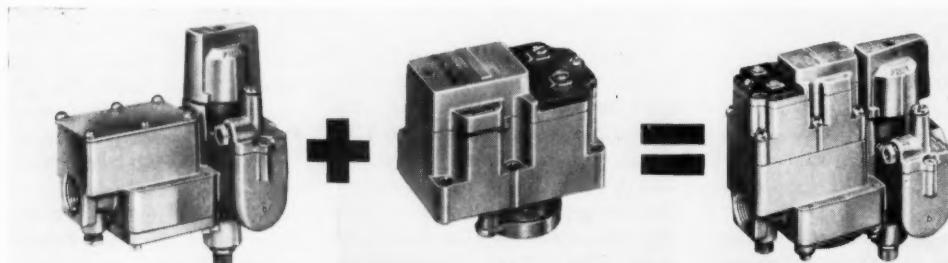
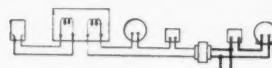


Fig. 5. The automatic remote-controlled valve can also be incorporated into the single manifold design simply by adding the remote-controlled automatic valve in place of the self-contained valve.



Controls "packages" simplify installation, service

combined into a single manifold unit. A typical example of this combined unit is shown in Fig. 2. An additional safety feature, safe lighting, is provided by this manifold. When the gas cock is in the "pilot" position, gas can flow to the pilot only; no gas can flow to the main burner.

If the gas valve closes due to a pilot failure, it must be manually reset before gas will flow to the main burner. The thermoelectric current is not sufficient to open the valve; it is only sufficient to hold it open once it has been manually reset. This manual opening is impossible when the gas cock is in the "on" position due to the construction of the valve. Manual reset can be accomplished only with the gas cock in the "pilot" position, at which time no gas can flow to the main burner. This prevents accidental relighting of the main burner when the pilot is being relighted.

The only automatic control provided by the manifold we have just discussed is the pilot safety control. Comfort control was still provided by manually adjusting the main-gas-cock. To provide automatic comfort control, we must have a thermostatically controlled gas valve in addition to the manual gas cock.

One common method of providing automatic comfort control uses a self-contained, thermostatic gas valve. This valve incorporates a temperature sensing element and a dial for adjusting the setting. The temperature sensing device is normally located in the return air and mounted in such a way that it will not sense

any radiant or conducted heat from the unit itself. These self-contained valves utilize the mechanical reaction of the temperature sensing device to provide either on-off gas flow control, or modulating or proportional flow control.

When modulating action is desired, a minimum-rate setting is usually incorporated to provide modulating control down to a minimum burner requirement. The valve would simply provide on-off control for any heating demands less than this heating requirement. Modulating control is possible because, as the temperature drops, the sensing element will contract a corresponding amount, opening the valve farther and farther to allow a greater flow of fuel. (See Fig. 3.)

To simplify installation and service, and meet minimum space requirements, this self-contained thermostatic valve can be incorporated into the same manifold with the automatic safety pilot described above. The manifold shown in Fig. 4 is designed so that the automatic valve can be added to the heating unit merely by removing the plate and placing the thermostatic valve in the proper location on the manifold. No gas-line connection need be broken. The unit then becomes a single manifold incorporating both automatic comfort control and automatic safety control.

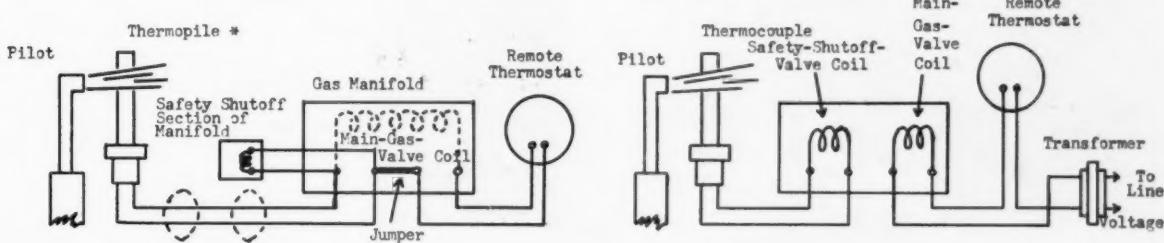
The sensing element for the self-contained valve is mounted directly on the heating unit in the return air stream. This means there is a possibility of room temperature variation beyond that

desired for maximum comfort control. To provide more reliable comfort control, it is desirable to measure the temperature at a location more representative of the occupied space. This is done by mounting a remote thermostat on an inside wall away from drafts, hot water pipes, or other undesirable conditions which would affect the temperatures sensed by the thermostat.

In this case, the valve action is controlled by temperature variations at the remote-mounted thermostat rather than at the self-contained, temperature sensing element. Because of its remote location, the most convenient means for transmitting the detected temperature change from the sensing element to the valve, and converting it into energy to open and close the valve, is with electrical power. This electrical power can be provided either by a thermoelectric, self-powered unit or by converting the standard 120-volt house power to the desired low voltage by means of a transformer.

The principle of operation for a control system, such as we have just described, is the same regardless of the source of electric power. An additional advantage that can be gained from a wall-mounted thermostat is the timed, two-position principle described in our first article. This allows us to provide much closer temperature control of the occupied space due to more frequent cycling of the burner.

The automatic, remote-controlled valve just described can also be incorporated into the single manifold design simply by



* Several thermocouples in a single unit connected in series.

Fig. 6. Two typical diagrams, a self-powered system (left) and a low-voltage system.

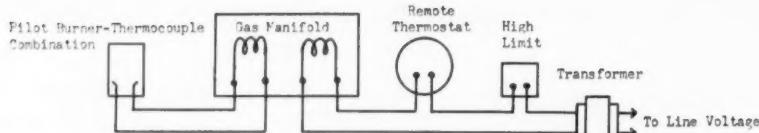


Fig. 7. This wiring diagram shows a typical control installation.

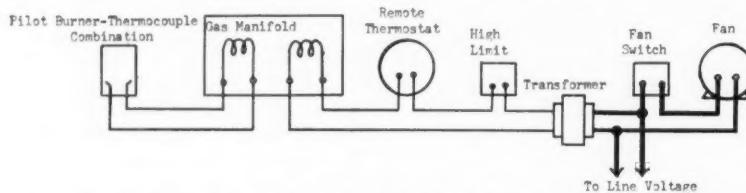


Fig. 8. The same circuit as shown in Fig. 7, with the addition of a fan switch to operate the air circulator.

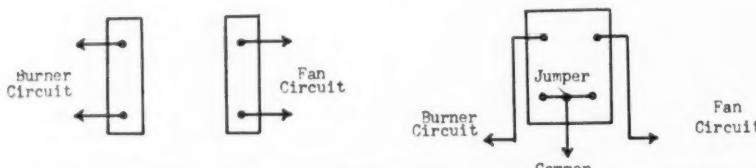


Fig. 9. Sensing elements for the control of both fan and temperature limits must be inserted through holes in the furnace plenum. Separate circuits for each (at left) may be combined into a single control, as at right, simplifying wiring and eliminating one hole in the plenum.

adding the remote-controlled automatic valve in place of the self-contained valve previously described. (See Fig. 5.) Another feature that simplifies installation and minimizes service is the inclusion of the transformer in the manifold unit.

Fig. 6 shows two typical diagrams, one a low-voltage system, the other a self powered control system.

In addition to the simple space heater just discussed, there are other similar types of heating units that distribute their heat directly from the unit. These in-

clude wall heaters, which are built into the wall, and floor furnaces, which are built into the floor. The primary advantage of both designs is that they conserve usable floor space. These heating units utilize the same control systems as the simple space heater—they contain the same safety control devices previously discussed, and can be provided with manual-type control, self-contained control devices, or wall-thermostat comfort control. However, there are certain control refinements that are often added to this type of unit.

For convenience of setting temperatures on units utilizing manual or self-contained control systems, a remote setting dial is often incorporated. In wall-thermostat systems a limit control may be incorporated into the control system to prevent excessive temperatures occurring in or around the heating unit. The wiring diagram illustrated in Fig. 7 shows a typical control installation.

Some of the units incorporate forced air circulation to provide even heat distribution and less stratification. When forced circulation is used, a fan switch must be incorporated into the control system to operate the fan at the desired temperatures. Fig. 8 shows the same circuit as Fig. 7, with the addition of a fan switch to operate the air circulator.

Heating units that distribute their heat directly, such as those described above, are often inadequate to provide close comfort control throughout a large structure, particularly if the structure is situated in a severe climate. In fact, most homes today utilize a central heating system. These units differ from those previously discussed in that they utilize a central furnace, from which heat is distributed to the individual heated areas by means of ducts. These warm air systems fall into two general classifications; gravity systems and forced-air systems.

The gravity - warm - air, central heating system, like the space heater, depends upon natural convection of heated air to provide

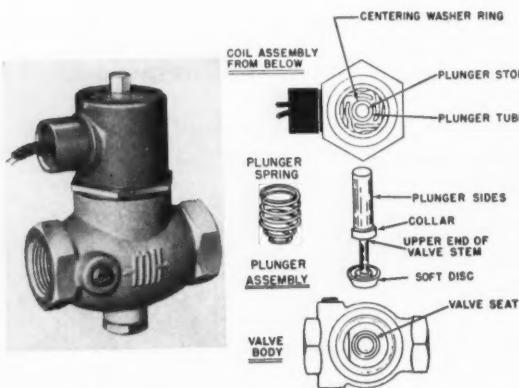


Fig. 10. The simplest type of gas valve employed with a central heating system is the solenoid valve.

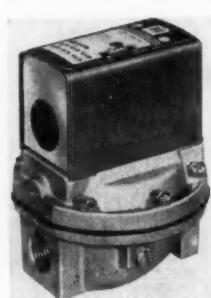
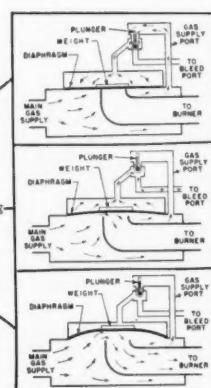


Fig. 11. To eliminate operating noise characteristic of the solenoid valve, the diaphragm gas valve was developed.



heat distribution through its heating ducts. However, these central heating systems are almost invariably controlled by a wall-mounted thermostat placed in an area representative of the occupied space. They must incorporate a limit control to prevent excessive furnace temperatures because the heating unit is remote from the space which it is heating.

In order to minimize the stratification of air, and to provide sufficient amounts of heat for all areas regardless of their distance from the heating unit, a fan may be added to the gravity system. This, then, becomes a forced-warm-air, central heating system. In addition to the high limit control, a fan switch must also be used with this system.

In order to sense the furnace temperatures at which the fan should begin operating, or the burner should be cut off because of high-limit conditions, sensing elements must be inserted into holes in the furnace plenum. For added convenience, both the fan switch and the limit switch may be incorporated into one controller. Because both switches can be operated from the same sensing element with a combination control, it is then necessary to cut only one hole in the plenum. By using a combination control, the wiring may also be simplified as shown in Fig. 9.

The basic components used to control a forced warm-air, central heating system are the same as those used with a remotely controlled space heater. These include an automatic gas valve, wall-mounted thermostat, pilot burner, thermo-couple, and valve-type pilot control. The fan and limit switches are added, and a secondary high limit control may be employed with down-flow furnaces to prevent excessive filter temperatures.

The simplest type of gas valve employed with a central heating system is the solenoid valve (Fig. 10.) This consists of an electromagnet that opens the valve when energized and closes the valve when de-energized. While this is an economical valve which provides adequate control of the gas flow, it is inherently noisy due to

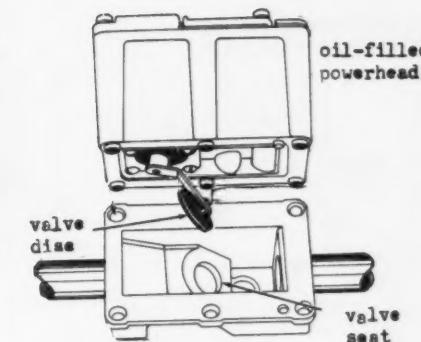


Fig. 12. "Silent valve" is built on the solenoid principle, but the operation noise is eliminated by the complete immersion of the working parts of the valve in oil.

banging of the plunger when the valve opens and the banging of the disc when the valve closes. To eliminate this operating noise, the diaphragm gas valve was developed (Fig. 11.)

With the diaphragm valve, the thermostat merely opens and closes a very small pilot valve; the main valve is operated by gas pressure. When the pilot valve opens, gas above the diaphragm bleeds off, allowing the gas pressure below the diaphragm to force the valve open and permitting gas to flow to the main burner. The diaphragm valve eliminates the noisy operation of the solenoid, but, because of its complexity, it is generally more expensive.

Many currently available valves

now use the solenoid principle, but eliminate the operation noise by completely immersing the working parts of the valve in oil (Fig. 12.) This oil bath dampens the noise of operation and permanently lubricates the moving parts of the valve.

To simplify installation and service procedures, the pilot-safety-shutoff mechanism may be added to the same body with the main gas valve (Fig. 13.) This provides, in a single casting, the basic safety and comfort controls. Even further refinements are available—in fact, a single manifold casting may contain all of the following: a manual gas cock for control of the gas flow to the pilot and main burner; automatic,

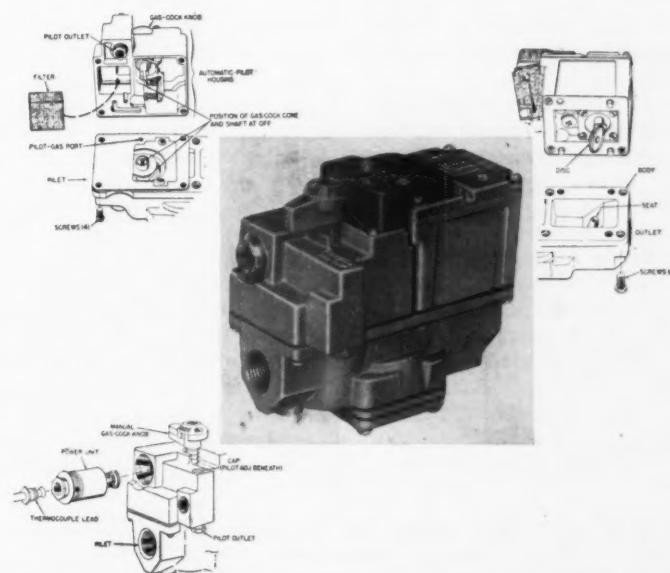


Fig. 13. To simplify installation and service procedures, the pilot-safety-shut-off mechanism may be added to the same body with the main gas valve.

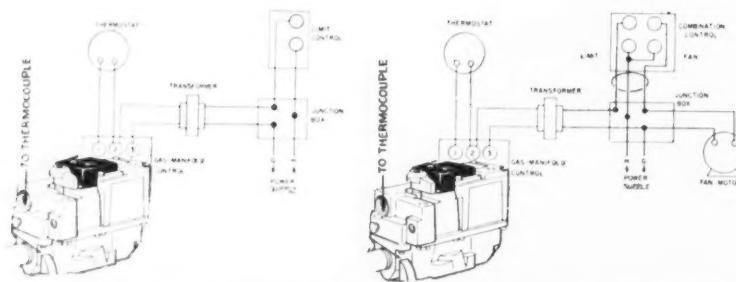


Fig. 14. Typical wiring diagrams of gravity warm air (left) and forced warm air central gas heating systems.

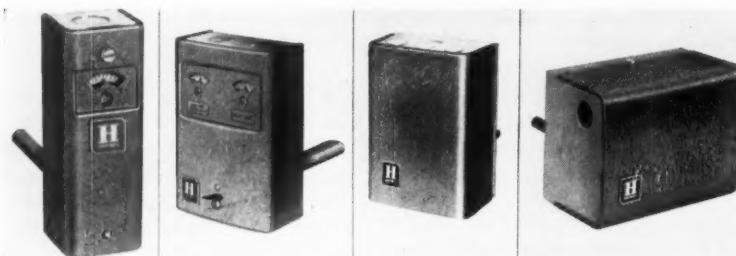


Fig. 15. Typical control devices for hydronic systems, with immersible elements for measurement of water temperatures. Left to right, a horizontal-mounted high limit control; a combination high limit, low limit and circulator control; a combination high limit, low limit, burner and circulator relay; and a combination low or high limit control and circulator relay.

main-gas control valve; pilot-gas outlet; a pilot-gas filter; pilot-flow adjustment screw; complete pilot-safety-shutoff mechanism; and a safe-lighting feature.

Thus a single unit may provide all the required safety control functions as well as automatic comfort control. This means that it is necessary to break the gas line at only one point to install the complete manifold control unit.

Fig. 14 shows some typical wiring diagrams of warm-air, central gas heating systems.

With a central heating system, hot water may be employed as the heating medium in place of the warm air. In this case, the gas burner heats a water supply which is distributed to the rooms through pipes. This method of heating is known as hydronic heating. The heat is distributed to the occupied area by means of radiators, convectors, or radiant panels in the walls, floors, or ceilings of the heated space. While some systems depend upon the gravity flow of heated water for distribution, most modern systems

utilize forced circulation for water distribution.

The control requirements for hydronic systems are basically the same as those for central warm-air systems: the differences are merely in control of the temperature and distribution of the heating medium.

In place of the warm-air limit control, we now have an immersion-type control to measure the temperature of the water; and in place of the fan control, we now provide control of the circulator or water pump. Shown in Fig. 15 are some typical control devices with immersible elements for measurement of water temperatures.

The diagrams in Fig. 16 show some typical hydronic heating systems. Note that in systems utilizing very fast acting boilers, the circulator comes on each time there is a call for heat. In other installations the circulator operates only when the water temperature reaches a pre-determined level.

Whether the heating system is central hot water or warm air, space heater or built-in unit, the control of gas flow to the main burner is essentially the same. The heating systems and control applications described in this article are typical of those found in most L. P. gas installations. However, these systems provide only the basic requirements for L. P. gas heating; there are many control refinements available that will provide even greater convenience and comfort for the L. P. gas user. The next article will describe these refinements. ■

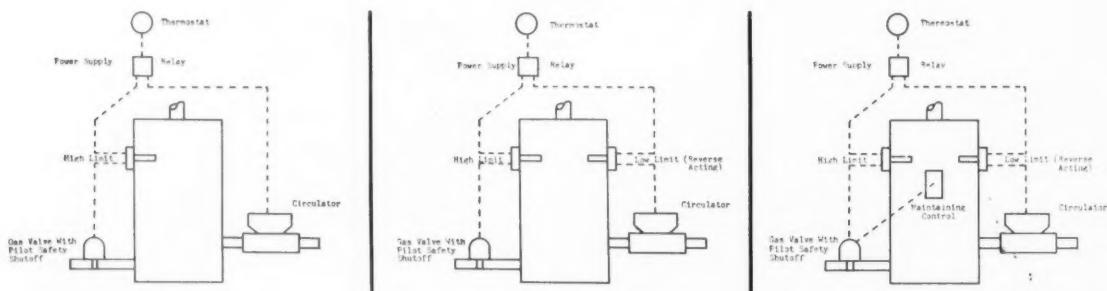


Fig. 16. Typical hydronic heating systems. LEFT, the gas valve and the circulator are energized when the thermostat makes. Both will operate until the temperature reaches the thermostat setting. High limit will interrupt the flow of gas but will not stop circulator. CENTER, same as the system on the left, except low limit delays

circulator action until the burner brings the temperature of the boiler water up to a pre-determined level. RIGHT, maintaining control keeps boiler water temperature from dropping below a pre-determined level. Otherwise identical with the center method. Sometimes low limit is omitted with this system.



Financing an LPG business—part 2

Where to go for money if your banker turns you down

Your banker isn't your only source of funds. Have you ever approached a commercial finance company, or tried floor plan financing? Don't let higher rates scare you off—remember, it still takes money to make money.

WILLIAM W. CLARK • Editor

DO you need money? we asked last month. The question was mainly rhetorical, because everyone in business needs money from time to time. Businesses cannot grow without borrowing in some form. The best-capitalized company in the world still buys on 30-day credit, if nothing more.

Other people's money is the hypodermic needle that feeds expansion. On this every businessman will agree. The only real questions that need to be answered, then, are not, "Do you need money?" but rather:

When should you borrow it?
How much are you willing to pay for it?

How far (legally, of course) are you willing to go in order to get it?

As we pointed out last month, the more desperate you are for money the more difficult it will be to get. At what point then—how

far short of desperation—should you seek it?

Financial experts remind us that we can afford to pay fairly steep prices for money if we can make a profit on it. Ideally, then, we should borrow on the basis of opportunity rather than need.

For example, how's your cash position? Does it permit you to take advantage of your suppliers' cash discounts? Or must you wait each month for your customers to pay their bills to you before you can pay your own?

If you could make 2 per cent per month on discounts, how much would you be willing to pay for the money needed to accomplish it? Would 1 per cent per month be too high? Obviously not: you're doubling your money.

This profit would be one more source of funds, out of which you could buy more product, or pur-

chase tanks or other equipment. It would help build the level of your working capital, which would give you all sorts of advantages, as we pointed out last month. It takes money to make money, even if you have to borrow it. An extra four or five thousand may be exactly what's needed to enable you to take advantage of opportunities for expansion as they arise.

Where to borrow

Where are you going to get this sort of financial help? Possibly from your own bank. If not, you will find there are other financing institutions that stand ready to advance money on receivables and other types of security.

One of these is the commercial finance company, of which there are some 400 in the United States. These companies are not interested in long-term financing, but they will finance accounts receivable, rolling stock, and heavy income-producing equipment. They also give advice and consultation on management, budgeting, record keeping, expansion programs, etc. They are primarily interested in making loans in the \$25,000 to \$250,000 class.

Commercial finance companies will advance up to 80 per cent of the amount of the accounts you assign as security. The interest rate

is higher than a bank's, running generally 1 per cent a month (commercial companies cannot take deposits, so they must themselves borrow, resulting in a higher cost to their borrower). However, the rate is computed on the daily balances, so the effective interest may be nearly as low as that charged by a bank on a loan given for a specific length of time.

One of the qualifications for a commercial finance company loan is that the borrower have a book-keeper or accountant who keeps an orderly record of his receivables. He must send the company copies of his invoices or monthly customer statements. As he receives checks from customers on account, he must forward these to the lender.

(More detailed information on commercial finance companies can be obtained by writing to William J. Drake, executive vice president, The National Commercial Finance Conference, 29 Broadway, New York.)

Banks that extend this type of loan sometimes require that the debtor be notified that the account has been assigned to the bank, and instructed to pay his bill to it. This is not universally the case, however; many banks will follow a procedure similar to that used by the finance companies.

There was a time when this sort of loan carried a stigma. It was thought of as a last-resort measure, a dying gasp of a company that was about to go under. But things have changed. In a dynamic, growing economy, where investment in a business must be a continuing program, it is regarded as a sound method for converting somewhat deferred assets into cash for building the business. Many firms use it regularly on a revolving basis, replenishing the collateral with new accounts as the old are paid up.

Another financing method that conservative businessmen once abhorred, but which is now considered financially sound, is floor plan financing of inventories. Here the bank's collateral is held in trust by the borrower; as he sells a "floored" item, he pays off the loan which was secured thereby.

An outgrowth of this is the field warehousing plan, where the warehouse is literally "brought to the customer," instead of the customer

taking his goods to the warehouse. An agent for the lender takes custody of the goods, on the borrower's premises; as these goods are sold, the proceeds are applied against the loan. (This method was described at length in BUTANE-PROPANE News in an article titled "Field Warehousing—An Aid in Financing LPG Inventories," which appeared in November 1954, pages 35-37.)

Many banks are in a position to participate in either or both floor plan financing and field warehousing.

Another source of capital that should not be overlooked is the Small Business Administration, whose methods and requirements were thoroughly discussed in BUTANE-PROPANE News, April 1957 (see "Need A Loan? Uncle Sam Might Fix You Up," pages 40-43).

When to borrow money

When a businessman needs money for expansion and his own pocketbook is too flat to supply the need, he likely will think first of borrowing from others. This is essentially sound: in fact, he should borrow long before his pocketbook reaches that condition. The largest and richest corporations regularly use other people's money. A certain percentage of debt capital in a financial statement is regarded as healthy. Companies that are growing fast, such as gas pipeline companies, frequently operate with capital ratios where borrowed money far exceeds "equity" or ownership investment.

To them, borrowing money to meet a temporary need is better than "diluting" one's equity too much by parceling out more ownership in the form of stocks.

On the other hand, a policy of always borrowing capital to meet expansion requirements has its

limitations. There is a ceiling on how much you should borrow—and, similarly, on how much you *can* borrow. You must have enough equity capital to attract lenders. Remember, what they loan you is not essentially *risk* capital. They are not willing to assume the same risks as the owner of the business.

Increase of ownership

So there may come a time when, like it or not, you must increase ownership in the business by bringing in another person with risk capital to invest. The more he—or they—bring into the business, the more money you will have for expansion—and the more the business will be able to borrow.

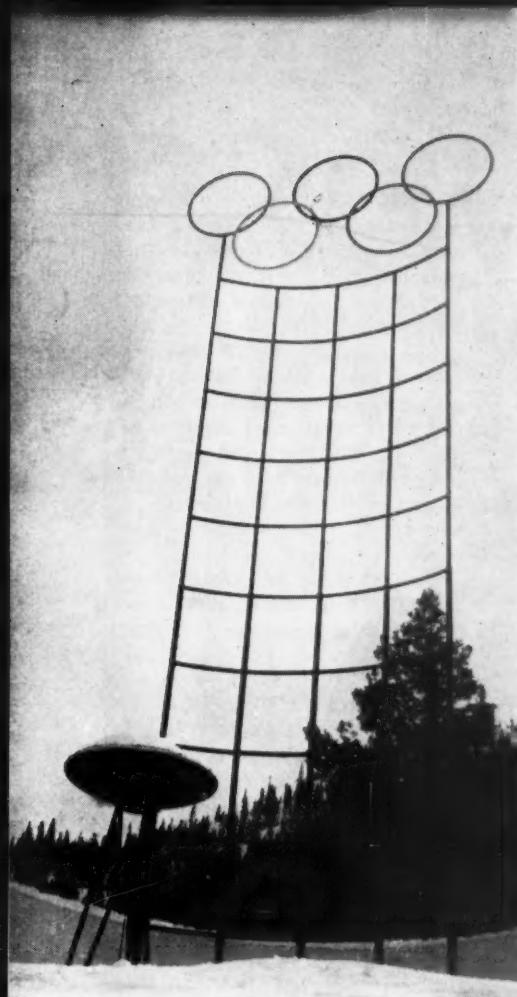
At this point you will have to ask yourself:

Am I willing to coast along, resting on my laurels, or must the business grow in order to prevent a more progressive and wealthier competitor from moving in and taking over?

This latter is a tough question to answer. No one likes to lose control of his own business—even partial control. Being one's own boss is a form of fever that grips the economy. It's a fever that can drive a businessman to heights of accomplishment. But it can also kill a stubborn patient. One who refuses to yield up a part of the control may end up losing it all. He can sell out or go broke; or he can take certain steps whereby he brings in new owners while retaining a good measure of control.

There are two principal ways in which this can be done—by taking a partner (or partners) and by incorporating. Each has its advantages and disadvantages. (But so does a proprietorship, as you so well know!) Next month we'll take a quick look at these two possible courses of action. ■

A change in your business structure to partnership or corporation may be the only means left for acquiring badly needed capital. But neither should be considered a last-ditch arrangement. Both have advantages aside from the fact that they bring in capital so badly needed for expansion.



Propane keeps the Olympic flame alive at Squaw Valley

A soaring Olympic tower forms the backdrop for the symbolic torch, which fires a flame that is kept alive throughout the games. At right, a closeup of the torch itself. LPG was introduced into the torch bowl at the center through a pipe (not shown). As insurance against the flame's dying out, a pilot light was kept burning continuously.



L. P. gas played a vital role in the VIII Olympic Winter Games, February 18-28 at Squaw Valley, Calif.

The flame of the spectacular, huge Olympic Torch, centrally located in the front of the speed skating oval, was kept burning continuously throughout the games by L. P. Gas.

The flame was flown from Greece to Los Angeles two weeks before the opening day and a relay of high school runners carried it north to Emigrant Gap, where a four-minute supply of oil was lit by the torch and carried down the slopes of Squaw Valley by Andrea Meade Lawrence, famed U. S. skier, in time for the opening ceremonies.

Pacific Delta Distributors Inc., San Jose, Calif., worked very closely with Disney studios, which designed the layout of the installations at Squaw Valley. The Pacific Delta organization was selected by the Olympic committee to keep the

torch burning with propane once it was lit by the torch flown from Greece.

Hidden behind tall trees that made up the background for the Olympic tower that rose skyward above the Olympic torch was a 5000-gal. trailer-mounted propane tank.

The flame burned 55 gal. of propane an hour. It was fed from the tank through lines 2 in. in diameter. An 8-ft high flame, 7-ft wide burned from the 2-ft deep bowl.

It was necessary to test the bowl and flame in a wind tunnel to assure the design's ability to withstand snow, wind and rain. Special arrangements had to be made by the propane technicians to achieve a yellow flame, which was necessary to make it visible for the spectators, TV and motion picture audiences.

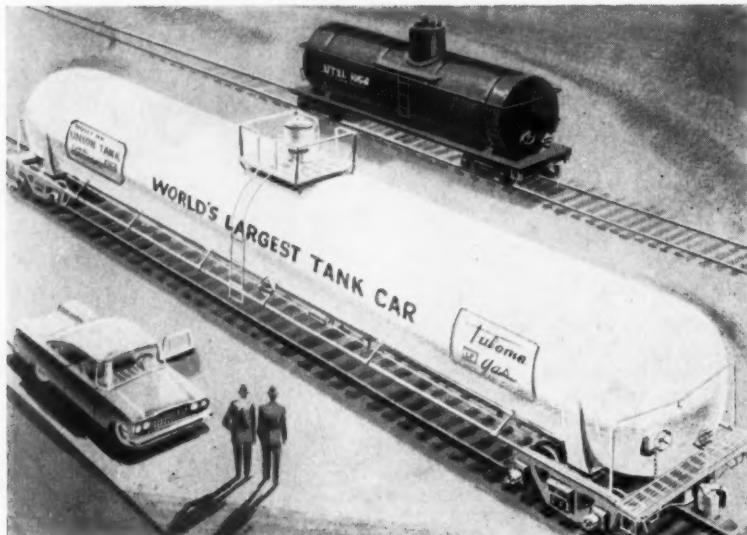
The people and their companies who made the ever-burning torch possible are: Ben Brunner, Man-

chester Tank & Equipment Co., Los Angeles, which designed and built the burner for the torch; American Liquid Gas Corp., Los Angeles, which loaned the vaporizer for the system; Pacific Delta Distributors Inc., which loaned several hundred feet of extra heavy 2-in. pipe, fittings, etc., and provided installation counseling, working very closely with Disney studios; California Liquid Gas Corp., Sacramento, which provided a storage tank suitable for the fuel supply; Union Oil Co. of California, which supplied the L. P. gas for the project and, finally, Lakeside Propane Co., Tahoe City, Calif., which saw that the fuel supply was maintained for the ever-burning torch.

Ralph A. Weaver, manager of Pacific Delta, stressed that all work and materials, together with the propane gas was donated to the Olympic Committee by the L. P. gas industry. ■

Meet the "Hot Dog-30"

Tuloma predicts huge tanker will slash transport costs



Average-sized tank car is dwarfed by Tuloma's new Hot Dog-30, which will have a shell capacity of 30,000 wg. The first two of the monsters, now under construction by Union Tank Car Co. and its subsidiary, Graver Tank, are scheduled for April delivery.

Statistics on the Hot Dog-30

Class of car	112A400-W
Type	HD or "Hot Dog"
Insulation	None
Water capacity	30,000 gal.
Tare weight	104,700 lb plus or minus 13500 lb manufacturing tolerance
Gross weight	233,000 lb
Truck centers	71 ft 5 1/4 in.
Journals	6 1/2 in. x 12 in.
Trucks	100 ton
Size wheels	36 in. diameter
Roller bearings	Yes—Timken
Height	14 ft 6 13/16 in.
Width	9 ft 6 in.
Coupled length	85 ft 1/4 in.
Meets standard AAR clearance	Yes

UNION Tank Car Co. is constructing two railroad tank cars—each with a 30,000 gal. shell capacity—for use by Tuloma Gas Products Co., Tulsa, a nationwide marketer of L. P. gas.

Use of cars of this size—the largest tank cars in the world—can provide greater economy in the rail transportation of liquid products. The designing and constructing of these cars also represents a milestone in the engineering of modern, up-to-date tank car equipment.

Each of the huge cars will have a shell capacity almost three times that of today's average sized cars. The cars, when completed, will measure 85 ft in length. They will be 17 ft longer and have 8300 gal. more capacity than the largest railroad tank cars presently being used in interchange service.

"The new Hot Dog-30 tank cars represent a new concept in the transportation of bulk liquid products," E. A. Locke, Jr., president, Union Tank, said. "Their use should offer major operating economies to the lessee and to the railroads. They are particularly adaptable for shipments of L. P. gas and other relatively lightweight commodities."

Wide use of the 30,000 gal. cars could mean a considerable savings of operating costs to the rail industry. According to figures based on an Interstate Commerce Commission report, one of the giant 30,000 gal. cars may be operated at a savings, per gallon moved, of more than 33 per cent of the cost of operating the average-sized tank car. These major economies will be realized principally in the reduction of road-haul and terminal costs, as well as scheduling and other administrative burdens.

J. L. Potter, Tuloma's manager of traffic, stated: "The Hot Dog-30 car outmodes many of the present concepts of transportation. We are looking for the most economical and stable means of long-range transportation. This new car may be the answer. Tuloma currently is negotiating with the railroads for an equitable rate on this new type car. If a favorable decision is reached, we will begin to supple-

PROVED TOP CHOICE FOR LOW OVERHEAD DELIVERIES

FIRESTONE, THE LOW-COST-PER-MILE TIRE FOR ON-TIME L. P. GAS DELIVERIES!

Firestone tires' low-cost-per-mile is reflected in performance records of thousands of trucks across the country. That's because 425,000,000 tire miles a year in Firestone's own truck tire testing program prove Firestone truck tires are your best buy! This vast tire testing program resulted in Firestone Rubber-X, the longest-wearing rubber ever used in Firestone truck tires. It also resulted in Firestone Shock-Fortified cord which means extra miles of service out of every tire. Get performance proved Firestone truck tires, on convenient terms if you wish, at your nearby Firestone Dealer or Store.

Firestone

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*FIRESTONE T.M.

ment our present tank car fleet with these super-sized cars."

According to Potter, "Tuloma believes this large capacity car offers the railroads a real opportunity to improve their competitive position by enabling them to reduce costs more in keeping with the costs of other modes of transporting bulk liquid products. To Tuloma, as a lessee, the economies will not be realized for many years. We have a very large investment to pay out and many handling problems to overcome."

Construction of the new large capacity cars is made possible by Union Tank's recently patented Hot Dog design, which incorporates the first basic changes in tank car design in 40 years. Cars with this design weigh less, carry more, have greater versatility, and are safer and more efficient to operate, maintain, load, unload, and inspect than any other tank cars now being built.

The initial two Hot Dog-30 cars will be put into service by Tuloma immediately upon delivery, scheduled for this spring, and will be used for L. P. gas shipments.

Most tank cars in service today range from 6000 to 12,000 gal. In 1958, Union Tank Car Co. developed tank cars of 20,000 gal. capacity and last year constructed four cars 65 ft in length that have shell capacities of 21,700 gal.

Because of the size of the cars, unloading racks will need to be modified to accommodate them. For this reason, they will only be dispatched to a limited number of selected points.

The new, sausage-shaped cars have an outside tank diameter of 99 in. When empty they weigh 108,200 lb. To accommodate this weight, the cars will be fitted with roller bearings and 36-in. diameter wheels. Ordinary tank cars have 33-in. wheels. In addition to these engineering changes, the cars will have specially designed valves and other modifications. The cars will also be painted white to minimize heat absorption. ■



Whenever it is necessary to change displays in any way, Morton Tanner, manager, Schoolman-Mand Carpet Co., simply swings aboard the LPG fork lift, kept parked at the rear of the showroom, starts up the engine and slides the extended forks at the front of the machine under the roll. It requires only the touch of a lever to lift the roll clear from the floor, and move it to any desired point.



LPG fork lift literally stops traffic

THE sight of a fork lift truck, busily shuttling among carpet rolls on the floor at the Schoolman-Mand Carpet Co. store in Phoenix, Ariz., literally "stops traffic," according to manager Morton Tanner.

The store, located in Phoenix's "Gold Coast" shopping area on North Central Ave., is a "pilot store," designed to eliminate many of the unsightly factors common to merchandising from full rolls. In making up the original lay-out of the company's store, Schoolman-Mand decided to do away with the usual wall racks altogether, in favor of carpet rolls displayed on the floor, in horizontal rows, down both sides of the 100 x 30 ft building. This, of course, immediately brought up the problem of how the heavy rolls would be moved from place to place without the use of overhead trolley rails, winches, and similar heavy-duty weight-handling equipment.

Management wasn't stumped, however. Instead of festooning the ceiling and walls with lifting equipment, the company simply bought

an LPG-powered fork lift truck, painted it bright yellow, and put the machine on permanent duty inside the showroom.

Burning LPG the fork lift has no offensive gas fumes to contaminate the showroom atmosphere. In constant use day after day, the truck is fully visible through the all-glass front of the store, with some of the Arizona city's heaviest traffic in front—and understandably, passersby are amazed to see this unusual piece of equipment rolling through the svelte floor coverings showroom. "A lot of people have dropped in simply to ask questions about the equipment," Tanner indicated.

It wasn't long after the fork lift went into operation in the North Central Ave. showroom that Phoenix newspapers took notice of this "substitute for overhead rails" and gave it editorial attention. Many people stopped by to watch the fork lift in operation, and some of them, unquestionably, will be floor coverings prospects. ■

Now **MASTER TANKS** are filled **FASTER**



Master Tanks keep pace
with larger pumping
equipment now
used on propane
delivery
trucks

Now, all domestic tanks produced by Master Tank & Welding, Dallas, Texas, and Quincy, Illinois, will feature a new Multi-Valve® with a separate fill valve. This allows a much faster filling rate than any current Multi-Valve®.

This system utilizes splash filling, which creates a refrigerated condition and reduces the vapor pressure. Then tank can be filled without using a vapor return hose. Also, the direct flow on the separate fill valve cuts friction to a minimum

and reduces the strain on the truck pump. Rego engineers, in conjunction with Master engineers, have designed this new Multi-Valve® for the exclusive use of Master Tank & Welding. It cuts the time of each delivery stop and increases the number of calls each truck can make in a day. All this adds up to greater PROFITS. Another improvement has been to add a check lock to the bottom of the tank for liquid withdrawal.

LISTED WITH UNDERWRITERS LABORATORIES INC.



MASTERPIECES OF
STEEL FABRICATION



2000 S. Front St. • Quincy, Illinois • Baldwin 3-5014
P. O. Box 5146 • Dallas, Texas • Riverside 7-2441



TRANSPORTS



TANK TRUCKS



STORAGE



DOMESTIC



FILLING STATIONS



FARM CARTS



REFINERY



LINE PIPE

FORT SCOTT FARMERS CO-OP IS EXPANDING INTO PROPANE and BUTANE TO KEEP FARMERS IN CONTROL OF FARMING!

Propane is one of the fastest-growing, high margin industries in the country today. And farmers are the biggest users of this product. This makes Propane a definite part of our farming operation. But distant corporations drain off the profits from our farms and consumers. Prices of many supplies farmers must buy are not "fixed" or "admitted" rather than being set by the operation of the law of supply and demand! As a result, parity is back down to 80%, and so no matter how efficient we become on our farms, we will always remain the short end of the stick as we let others operate the most profitable part of agriculture's business! This doesn't make sense!!

Farmers of Peola, Humboldt, Mound City, Neodesha, Mound Valley, Coffeyville, Cawker City, Osawego, and many other communities have recently gone into their own Co-Op propane business. The result has been competition, increased savings on these farms, more money spent on Main Street. This does make sense!!

We farmers can learn much from other businesses. Our U.S. steel companies don't just run steel mills... they own and control their ore deposits, and they own the cargo ships to had the ore to their mills. simply because this is all a part of the steel business! This, too, makes good sense!!

WHAT'S GOOD FOR U. S. STEEL COMPANIES IS GOOD FOR U. S. FARMERS!

To Get Into The Propane And Butane Business We Have Set Aside
FRIDAY, JANUARY 16th as

CO-OP PROPANE DAY

On this one day, about 50 of our neighbors have volunteered to contact you and your friends to invest in our new **CO-OP PROPANE PLANT**. \$10,000.00 is our goal, and 10-year Certificates of Independence (non-assessable) are being offered in units of \$100.00 each. Anyone can invest, farmer and non-farmer alike. They pay 5% each year for 10 years, after which they will be retired, for easier, at the board's discretion. Watch your mail for more information.

**Co-Op Is An Independent, Farmer-Owned and Controlled
Tax-Paying, Free Enterprise Business System That
Returns Its Benefits To Its Customers!**

Propaganda such as this is helping to build large purchasing co-ops in the L. P. gas business. The lure of untaxed profits is strong. The trend toward the formation of co-ops is seriously eroding the tax base.

Give us equal tax break with co-ops, LPGA proprietary bloc cries

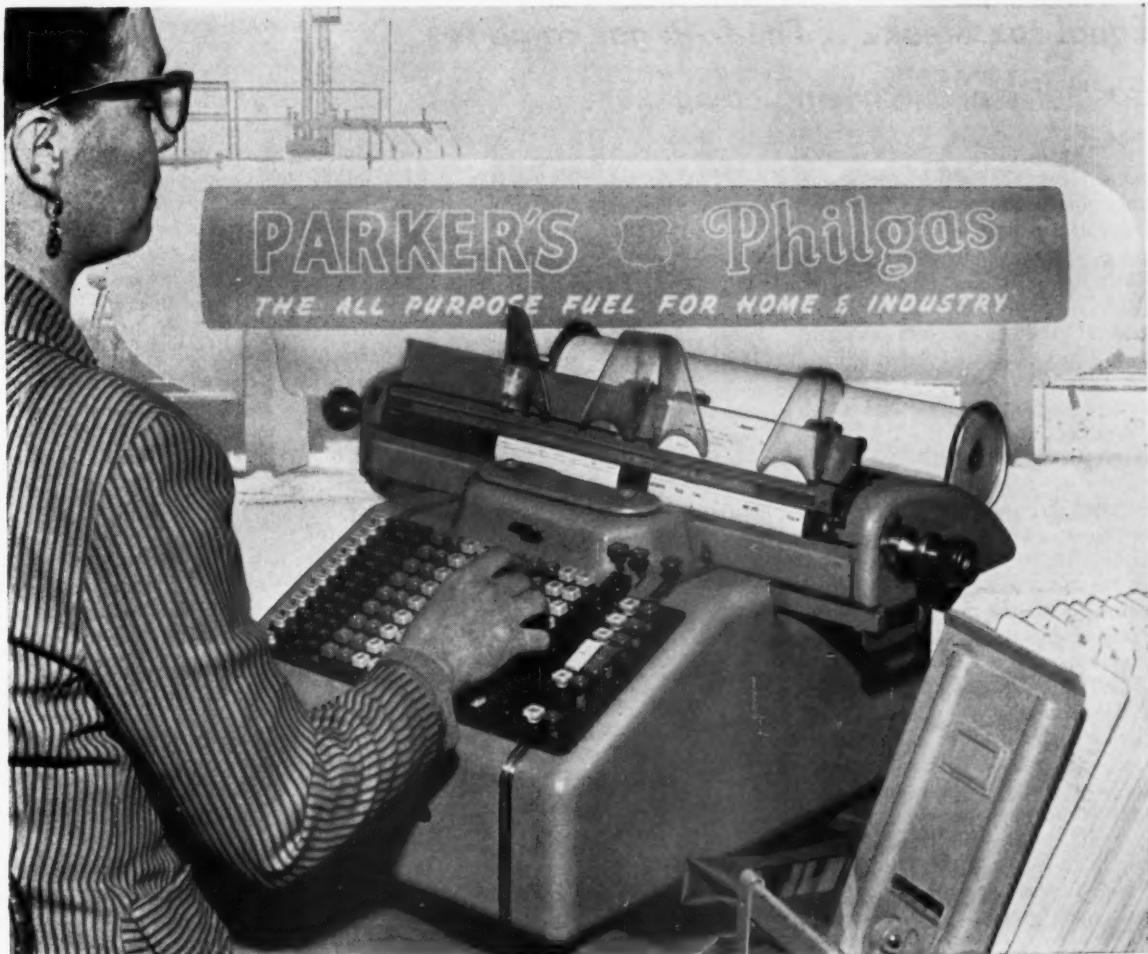
"Co-op tax-free enterprise is grabbing the largest share of new business and driving private, tax-paying free enterprise out of business," declared John Wallace in testifying before the House Ways & Means Committee last month.

"This is tax erosion that requires immediate Congressional action."

Wallace, vice president of Petrolane Gas Service, headquartered in Billings, Mont., appeared on behalf of the proprietary members of the LPGA. Because the case against the unfair advantage of co-ops was so forcefully and eloquently stated by Mr. Wallace, his remarks are published herein with a minimum of abridgment.

I AM appearing on behalf of the proprietary members of the Liquefied Petroleum Gas Association. The association represents about 80 per cent of national industry business volume. There are approximately 2200 privately owned member companies. We also have 34 affiliated state associations. The association has co-op members and this statement does not reflect their opinion. In appearing, I am accompanied by Preston Grace, a member of LPGA's board of directors and immediate past president of the Arkansas LPGA. The proprietary companies represented range from multi-state operators down to a small bottled gas dealer. The statements expressed would also represent the opinion of hundreds of other small non-member proprietary L. P. gas dealers. The board of directors of this association has previously, in a formal statement of policy, declared "its conviction in, and adherence to the principle that the American system of free competition and free enterprise demands that each form of business enterprise should stand on its own merits without favoritism or benefit of governmental subsidy, either direct or through inequality of taxation." We consider that co-ops are a form of business enterprise now favored through inequality of taxation. We are concerned with their explosive expansion as it affects the tax revenues of this country. Co-op tax-free expansion is grabbing the largest share of new business and driving private tax paying enterprise out of business. This is tax erosion that requires immediate Congressional action.

The L. P. gas dealer comes in contact with two types of co-op, the LPG co-op and the REA co-op. We believe that this hearing is primarily concerned with the agricultural co-op which if tax exempt falls under Sections 521 and 522. We will accordingly direct our principal comment at that type of co-op. However, we wish to express our equal concern with the REA co-op; that also pays no Federal tax, and enjoys a subsidized interest rate of 2 per cent. They are apparently exempt under Section 501 (c) (12). Our statements relative to the business nature and



BURROUGHS ACCOUNTING MACHINE ECONOMICALLY AND EFFICIENTLY ABSORBS 1,000 NEW ACCOUNTS

The scene: Parker Appliance Co., Flint, Michigan, L. P. Gas dealership.

The jobs: All of Parker's accounting, including its postcard billing. **The results,**

according to partner R. G. Parker: "Although we've acquired 1,000 new accounts (and no additional personnel), our Burroughs Accounting Machine continues to give us up-to-the-minute figures on all transactions, including positive control over accounts receivable with the result that we receive payments more promptly. We have also been able to maintain economical routing of deliveries."

Burroughs-TM



Parker Appliance is one of many gas dealerships helped to new accounting efficiency by Burroughs office automation equipment. For details, action—and results—call our nearby branch now. Or write Burroughs Corporation, Burroughs Division, Detroit 32, Michigan.



Burroughs Corporation

"NEW DIMENSIONS / in electronics and data processing systems"

Equal tax break . . . The L. P. gas co-op is basically a purchasing co-op

equitable tax handling for co-ops have equal application to this co-op form of business enterprise. REA co-op tax erosion is very substantial. In a January 1960 release, REA Administrator David Hamil reports that 1959 net margins totaled an estimated \$87.7 million, up 16.6 per cent over 1958, and further states that "five out of six consumers added to the REA lines in the continental U. S. during 1959 were non-farm customers." Section 501 (c) (12) should be clarified to eliminate any purported exemption and place these co-ops on the same plane with the private enterprise with which they are unfairly competing through present favorable tax treatment.

The L. P. gas co-op is basically a purchasing co-op. Consequently, our comments and recommendations are related to that type of co-op operation. These comments have equal application to the "tax exempt," and so-called taxable co-op, for they relate to similar tax treatment on net margins. We recognize that there are distinctions at present, but there is no practical reason for separate handling. While basically a purchasing co-op, some related L. P. gas co-ops have expanded to production and manufacture. Regional co-ops, such as Consumers Co-operative Association, are outstanding examples. CCA produces, transports, and markets L. P. gas, and even manufactures customer tanks and appliances. I have read in detail pages 1867 to 1983 of the Volume 3 of the Tax Revision Compendium prepared for the committee in November. Obviously, it would be repetitious to restate the co-op tax policies and principles that are so adequately presented. We are appreciative of the theoretical, historical and legal principles involved. However, the experts, even those of apparent co-op persuasion, appear to be unanimous in their belief that tax revision is justified and necessary. The question seems to be how to do it, with the complementary objectives of prevent-

ing continued tax erosion, and creating tax equality with private enterprise. We are not in any sense suggesting that co-ops be eliminated. Perhaps the small farmer needs the benefit of the co-op form of organization for his marketing and some immediate purchases. We are suggesting that the co-ops pay their fair share of the tax burden for the privileges they enjoy on a basis comparable with private industry.

Under the social theories surrounding the creation of the co-op organization, it was considered to be an organization that contributed to the general well-being of society, and did not operate for the purpose of making a profit. The legal basis of exemption for purchasing co-ops dates from the Revenue Act of 1921 which provides exemption for "farmers, fruit growers, or like

associations." These basic theories or principles no longer apply to the modern L. P. gas co-op. Co-ops are now formed, or have developed, into organizations that primarily operate for the well-being and profit of their members. Their competition—like society in general—is being forced to assume the burden of the tax that is now lost. A number of countries outside the U. S. have recognized this and now tax co-ops. Congress showed intent in 1951 that was vitiated by the co-op member wiggling through a technical loophole. Does this demonstrate an organization dedicated to the well-being of society? It is obvious that the well-being of its members is the paramount consideration. L. P. gas co-ops are no longer necessarily small agricultural purchasing groups. They are off the farm. They are big. If size is any criterion for exemption, there are innumerable L. P. gas dealers much smaller than co-ops. Co-ops have expanded their facilities with tax free earnings at a rapid rate. Tax paying competitors cannot even maintain their existing position in some areas and tax income is suffering. Unless Congress takes action, the tax free co-operative will soon dominate the L. P. gas market with resultant additional tax erosion. The attached announcements on the initiation of new L. P. gas co-ops demonstrate business activity comparable with private tax paying enterprises and a further challenge to tax revenue. Duplicate or similar advertisements appeared during 1959 in many areas. Their similarity indicates a concerted and stimulated campaign at a national level. This is a far cry from the original theory creating the agricultural co-op. These announcements speak for themselves but I would in particular direct your attention to the invitation to the general public, farmers and non-farmers, members and non-members, to participate. I request that these attachments be made part of the record.

As additional specific examples of co-op tax free operations in this industry, I first refer you to the 1959 annual report of Consumers Co-operative Association, a significant factor in this industry.

LINCOLN CO-OP ASSOCIATION
IS EXPANDING INTO
PROPANE!

The propane era is without a doubt here. Farmers want and need this propane service as a part of their CO-OP operation. Most farmers are now using or are switching to this clean-burning fuel, both for heating and for power. PROPANE is a "natural" and has an essential place in the modern, up-to-date CO-OP petroleum operation.

CO-OP DOLLARS RETURN MORE FARM DOLLARS!

CO-OP propane will help increase our net savings and RETURN FARM DOLLARS where they belong — TO THE FARMER HIMSELF!!

CO-OP Propane Day

WEDNESDAY, MARCH 4th

On this ONE DAY, 15 or more teams of farmers—your neighbors—have volunteered to CONTACT YOU and your friends to invest in your LINCOLN FARMERS CO-OP OIL CO. Propane will be another department of your present CO-OP, not a new CO-OP, which means added security, and increased savings.

INVESTMENTS AVAILABLE

Certificates of indebtedness, paying 4% annual interest, mature in 10 years, or earlier, at the discretion of the board of directors. \$20,000 will provide complete bulk storage and farm delivery service. ANYONE CAN INVEST — FARMER or NON-FARMER, MEMBER or NON-MEMBER.

This Is A Good Investment—A Sound Investment

Your Lincoln CO-OP is returning good savings to the farmers of this area, over \$68,000 paid out in just the last 8 years. The addition of propane service will help serve our farm equity even more, and build better rural communities, too.

Keep Farmers In Control Of Farming

Be ready to do YOUR PART—By investing in C. F. in multiples of \$100 on CO-OP PROPANE DAY

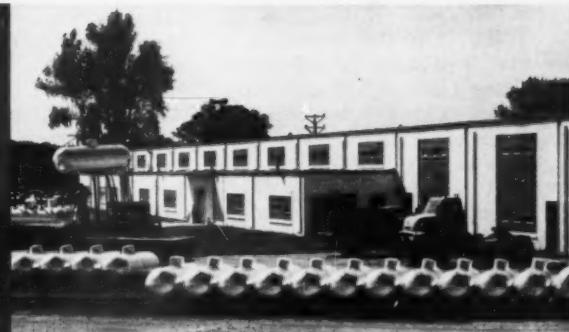
CO-OP: Our Best Farm Program!

"Keep farmers in control of farming," the battle cry of the LPG co-ops, is echoed in the "Co-op Propane Day" ad.

Where else so complete a service for ALL your bulk plant needs?



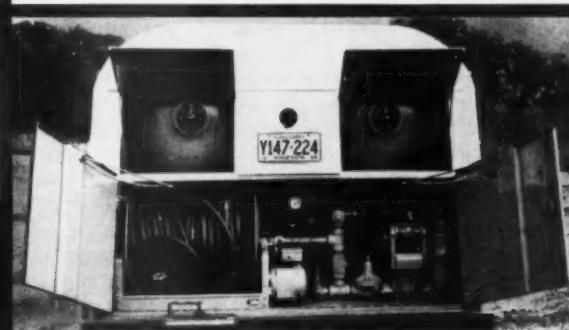
Best-quality NGAA-specification fuel, plus *assured* on-time delivery.



Complete warehouse stock of LP-Gas parts and equipment, for immediate service.



Complete line of "Topper" Systems, quality-built for lifetime service. New endmount systems available.



"Speedloader" trucks in 3 sizes, and United "Hitch-Hiker" trailers.



Engineering and technical services, including design and construction of complete bulk and standby plants.

We believe United knows how to serve you best, because United originated the idea of one-source supply for the LP-Gas bulk operator. Try us and see!



UNITED PETROLEUM GAS COMPANY

4820 Excelsior Blvd., Minneapolis 16, Minn. • WA 7-9981

Equal tax break...Credit memos can be compared to stock dividends

CCA reports for their year ending in 1959, 32 petroleum associations expanded into liquefied petroleum gas distribution making a total of 204 co-operatives now looking to CCA for their L. P. gas supplies. The increase in sales that year was 17,756,000 gal. over the previous 12 months or an increase of 25.31 per cent, double the industry-wide experience for the comparable period. That is taxable business lost to private enterprise. During this same 12 months period CCA had total net margins of \$10,565,986. Of this amount after distribution of \$296,244, to subsidiaries, the statement shows patronage refunds of \$6,582,387, payments of dividends—\$983,262, and a retention of \$1,466,793. However, this 6½ million, which at first glance appears to be a refund, was not that. Of this 6½ million, cash of only \$1.4 million was returned. The balance, or \$5.1 million was paid in dividend bearing preferred shares in accordance with a plan adopted in 1952 by this corporation which provides that 80 per cent of the patronage refund be paid in this fashion. As further examples, and as reported on page 1921 of the Tax Compendium, two other significant co-op factors in this industry had the following experience in 1957, the latest figure obtainable when this statement was prepared. Farmers Union Central Exchange had sales of \$75,792,000, and net margins of \$8,578,000. Midland Co-operative Association had sales of \$43,320,000, and net margins of \$2,031,000. These co-operatives made no cash refund during that year. These net margins escaped taxation. In newspaper reports* of the Midland Co-operatives Inc., recent annual meeting General Manager Smaby is quoted as stating that their 5 year growth plan, including 30 new L. P. gas plants, will bring member co-operatives a higher return on their investments and that with fewer living on the farm in the 1960's Midland expects to serve many more people in cities and suburbs. If there is any lingering doubt as to the full corporate status of the co-op, I recommend a complete reading of CCA's 1959 annual report.

Our conclusions and recommendations may seem like over-simplification but it is time simplicity entered into this confused tax picture to dispose of the tortured reasoning whereby exemptions are supported and to stop further tax erosion, now. The co-op corporation is a corporation, and as such a legal entity. There is no relationship of partnership among the members, or with the corporation. Neither is there a relationship of principal and agent between the member and the corporation. If there were a true agency the purchasing co-op would buy only on order. The fictions of agency and partnership should be disregarded and the co-op corporation considered in its true light as a profit making corporation. It appears that co-op corporations desire all the privileges and protection of the corporate form without bearing their just and fair share of tax responsibility. Federal taxes are an item of corporate operating cost paid for the services of government, received equally by the proprietary corporation and the co-op corporation.

If we recognized the co-op corporation as a legal entity acting in its own right and subject to tax as a private corporation, we next face the question of a proper tax basis. Supplementary to this is the question of the nature of the patronage return, particularly the credit memo. It is a dividend. In the case of the purchasing co-op, and particularly the regional co-op we encounter in the LPG industry, its ingredients arise from so many sources as to become inseparable, i.e., profits on production, on manufacture, on transportation, return on substantial capital investment, sales to non-members—and last and probably least—sales of gas to members. A credit memo that may or may not be redeemed in cash at some future date is not a rebate. It is probably best compared to a stock dividend. There have been many suggestions advanced recognizing that most of these ingredients of the dividend, that arise from profits similar to private corporate profits, i.e., return on capital, be subject to tax but we sub-

mit that the problem of separation is such that the only practical approach is taxation of the net margin. If the patronage return is a true rebate, it will be payable in cash, paid at once, and can be handled as by any corporation. The co-op net margins represent net earnings before tax comparable to proprietary corporation earnings and should be taxed as such.

The suggestions that only the member be taxed on patronage dividends do not represent realistic handling. The committee will readily recognize the problem of collecting this tax from thousands of individuals. Tax erosion will not be stopped. The tax should be imposed at the corporate level as it is on other corporations. In this suggestion we are only placing into effect a representation made by the co-ops themselves. In 1959, co-op advertising reproducing material of the Co-op Advertising Council appeared in many newspapers.** After stating that the patron treats refunds just like any other item of income, the copy goes on to say, "In addition, the co-operative itself pays taxes under the same laws, at the same rates, in the same manner as any other corporation." We suggest that the co-op be permitted to do just that.

Tax equality means exactly that—placing co-op corporations on the same tax treatment basis as the private corporation. Nothing more is asked, for I reaffirm that we are in no sense suggesting elimination of the co-op as a form of business operation, or enterprise. Proprietary companies do urge immediate tax revision demonstrated as necessary in the face of co-op expansion, present and planned, that creates grave tax inequity and presents a most substantial drain on tax producing income from private enterprise. The solution is in repealing present Sections 521 and 522 and denying any exclusion on patronage dividends. Only through this action can unfair tax treatment be corrected and the present tax loophole effectively plugged. ■

*Beaver Dam, Wis., *Citizen*, Jan. 12, 1960.

**Including Ortonville, Minn., *Independent*, Feb. 19, 1959.



Now
accurate
oven control
down to
 140°

Biggest advance since
the "burner with a brain"*



NEW TYPE OVEN CONTROL

FLAME



MASTER



NOW, a roast, even the entire meal
can be cooked ready-to-serve
... hours before serving time!

No drying out... No w-i-d-e temperature swings!

NOW, the homemaker can complete cooking... hours before serving time. She can delay serving for hours... warm dishes... and thaw frozen foods in her new gas oven!

She can enjoy all these advantages by simply turning the new FLAME MASTER* gas oven control dial to the LO-TEMP area... down to 140°!

This new FLAME MASTER oven control will convert "lookers" into buyers and here's why—this biggest advance since the "burner with a brain" will soon be the *most-wanted* feature in new ranges and built-ins.

No w-i-d-e temperature swings. Of all oven controls, only the FLAME MASTER accurately con-

trols temperatures from 550° *down to* 140°. Available only in gas ranges, it's a Robertshaw control that can't be duplicated.

The new "no-button" automatic is a part of this FLAME MASTER oven control. It gives you another sales clincher. If the power goes out for any reason, the homemaker simply has to light a match to it! There's no button to push and hold in, no string to pull, no waiting for service man.

Write today for literature. Homeowners will be asking about the FLAME MASTER oven control with accurate LO-TEMP control. Robertshaw Thermostat Division, Robertshaw-Fulton Controls Company, Youngwood, Pennsylvania.

*Reprints of this ad will soon be mailed
to leading gas appliance dealers*

Robertshaw

MR.



tire meal
serve
time!

ature swings

from 550° down to 140°! Available, it's a Robertshaw feature indicated.

ton" automatic oven pilot, FLAME MASTER oven control system, makes clincher. If the pilot goes out, the homemaker simply holds it! There's no button to push, no pull, no waiting for a

literature. Homemakers will like the FLAME MASTER—the new with accurate LO-TEMP settings! Thostat Division, Robertshaw- company, Youngwood, Pa.

VMA 6782

*Trade Mark



Showers



Dresses



Relaxes with
Her Family



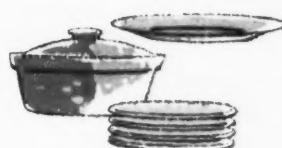
Entertains
Her Guests

Since the completely cooked roast and the entire dinner can be held for hours at serving temperature, the homemaker is no longer ruled by the kitchen clock.



Ready-to-Serve Meals Can Be
Delayed . . . for Hours

Now, that the ready-to-serve roast and dinner can be delayed for hours, there's no cause for worry if father or guests are late!



Warm
Dishes



Thaw
Frozen Foods

And now the homemaker can use her gas oven for warming dishes and for faster thawing of frozen foods. Example: a 7-lb. turkey can be thawed in about 2½ hours vs. 28 hours in a refrigerator or 14 hours at room temperature!

OP
L.P

A Handy R

Here's the
new type
oven control
that will...
convert
“lookers”
into
buyers!

Each booklet
subjects wh
more subje
mation writ
the industry

1. Pr
2. Bu
3. Fu
4. Se
5. Co
6. Se
7. Co
8. In
9. Fa
10. Pa
11. Pa
12. To

BUTANE-P

198 S. Alvarad

Please send

I enclose \$

Complete

- No. 1—
 No. 2—
 No. 3—
 No. 4—

Company

Name

Address

City & State

OPERATING AN L.P. GAS Business

A Handy Reference Library of 12 Practical Booklets

Each booklet is a collection of the best articles on the titled subjects which have appeared in Butane-Propane News. 15 or more subjects under each cover, from 48 to 64 pages of information written by authors recognized for their experience in the industry and their technical know-how.

1. Problems of Management
2. Bulk Plant Design and Operation
3. Fuel Transfer with Pumps & Compressors
4. Servicing Domestic Appliances
5. Consumer Bulk Systems
6. Selling
7. Commercial Applications
8. Industrial Applications
9. Farm Applications
10. Poultry Brooding and Incubating
11. Power
12. Town Plants

Available separately or as a set

----- ORDER FORM -----

BUTANE-PROPANE News

198 S. Alvarado St., Los Angeles 57, Calif.

Please send me, postpaid, the booklets ordered below.

I enclose \$ in full payment.
(In California add 4% sales tax.)

Complete set of 12 \$8.55

INDIVIDUAL BOOKLETS

- | | | |
|---------------------------------------|---------------------------------------|--|
| <input type="checkbox"/> No. 1—\$1.00 | <input type="checkbox"/> No. 5—\$1.00 | <input type="checkbox"/> No. 9— .50 |
| <input type="checkbox"/> No. 2—\$1.00 | <input type="checkbox"/> No. 6—\$1.00 | <input type="checkbox"/> No. 10— .50 |
| <input type="checkbox"/> No. 3—\$1.00 | <input type="checkbox"/> No. 7— .50 | <input type="checkbox"/> No. 11—\$1.00 |
| <input type="checkbox"/> No. 4—\$1.00 | <input type="checkbox"/> No. 8— .50 | <input type="checkbox"/> No. 12— .50 |

Company _____

Name _____

Address _____

City & State _____

A little bit can go a L-O-N-G way

\$100

will buy a brand new gas range from Ralph H. Smith Corp. and with "Pyrofax" to run it, your cooking problems will be over. Be wise...economize, and remember that "Pyrofax" runs all your gas appliances as efficiently and dependably as city gas. Call Laconia 1800.

\$ & % (\$)

There's no reason to use such language if you share in the benefits and economy of efficient "Pyrofax." Yes, it's the solution to all your cooking problems. Get a modern range and find out how much better it is to use "Pyrofax" from Ralph H. Smith Corp., in Lakeport.

CHERRY PIE

tastes better when cooked by gas flame, as do all other foods. Dependable, economical "Pyrofax" is your assurance of happier mealtimes, lower fuel bills, and increased all-round efficiency. Call Ralph H. Smith Corp., Laconia 1800. We'll be glad to help you all we can.

CANDLES

are nice on the mantle piece, but not when you need them for a source of light, when eating a cold supper because of power failure. Call Ralph H. Smith Corp., Laconia 1800 to learn the advantages of dependable, economical, efficient "Pyrofax" Gas.

FARMERS

Just because you live off the beaten track is no reason to be without dependable fuel. "Pyrofax" is the answer to your problem. For home, for barn, for chicken house, "Pyrofax" is best. Call Ralph H. Smith Corp., Laconia 1800 for details.

MARRY ME

Mary, and I'll buy that little cottage for you, completely equipped with modern gas appliances from Ralph H. Smith Corp., Lakeport. We'll select a new Caloric gas range and "Pyrofax" costs so little you'll have extra money in your budget.

MOTHER

You want to give your family the best, don't you? Then, have you thought of "Pyrofax" for cooking tastier, more nutritious meals. You'll be amazed how little "Pyrofax" costs, and it can be used for cooking, refrigeration, and water heating. Call Ralph H. Smith Corp., Laconia 1800 now. There's no obligation, of course.

NEWSPAPER advertising, to be effective and to produce sales, does not always have to cost a lot of money or consist only of large display ads. Ralph H. Smith Corp., Lakeport, N. H., has had success with a regular series of small space ads utilizing unusual headlines and clever copy. Note that in each ad a strong sales message is carefully worked into the copy.

Newspaper readers tend to get in the habit of looking for clever ads and following a series of them almost as carefully as they follow their favorite comic strip. So take a tip from this distributor, and develop your own style of ads. Your newspaper representative will be glad to assist you and offer suggestions.

Courtesy December 1959 "Pyrofacts"

WHY WORRY

When you can cook so much better with dependable "Pyrofax" on a new gas range from Ralph H. Smith Corp., Lakeport. Don't use substitutes when you can get the best by calling Laconia 1800. And, what's more, "Pyrofax" is amazingly inexpensive.

HERMIT

You don't have to eat berries or keep a fire going all night any longer. Just go to the nearest telephone and call Ralph H. Smith Corp., Laconia 1800 to find out how really inexpensive it is to cook or heat with dependable "Pyrofax" gas. Don't wait . . . get your estimate today.



**Here's a load
from the last place
you'd expect!**

Luminous ceilings such as this—plastic panels covering fluorescent lights—provide the service market for an electrical contractor's LPG-using panel-washing machine. Here, a member of Fluorescent Service Corp.'s crew removes a panel.

HARRY J. MILLER

THE local electrical contractor is probably the last place an LPG dealer would look for a load, especially a year-around one that rises with the temperature! Yet, an established Tampa, Fla., electrical contractor has developed a new business which makes him a steady LPG customer!

Ninety per cent of Fluorescent Service Corp.'s business is lighting maintenance in and around Tampa's commercial, industrial, and business establishments. As the firm name indicates, it concentrates on the familiar, long fluorescent lighting tube.

Today, most of these tubes are concealed behind vinyl or other plastic panels or louvers. These panels come in two types: small ones that are rigid and larger ones that are corrugated and flexible enough to be rolled for handling. Both types of panels may be simply spotted around the ceiling or they may be used to create an entire luminous ceiling. In either case, the effect is in many ways more desirable than that given by exposed tube fixtures.

Easy maintenance should be one



The 2000-lb trailer-mounted panel-washing machine is shown here in an off-side view. Note the angled washing bed, the spray nozzles, and the raised top of the machine.

BPW
EXCLUSIVE

BUTANE-PROPANE News



"LINDE helped us increase our business"

Says Irvin Etscorn, President, Big "3" Gas Company, Louisville, Ky.

"We've been buying cylinders from LINDE since 1949. As one of the largest distributors in the Midwest, we're in a position to compare cylinder quality—LINDE's are the best! We've never received a bad one. And by developing new kinds of cylinders and showing us where they can be used, LINDE helped us increase our business."

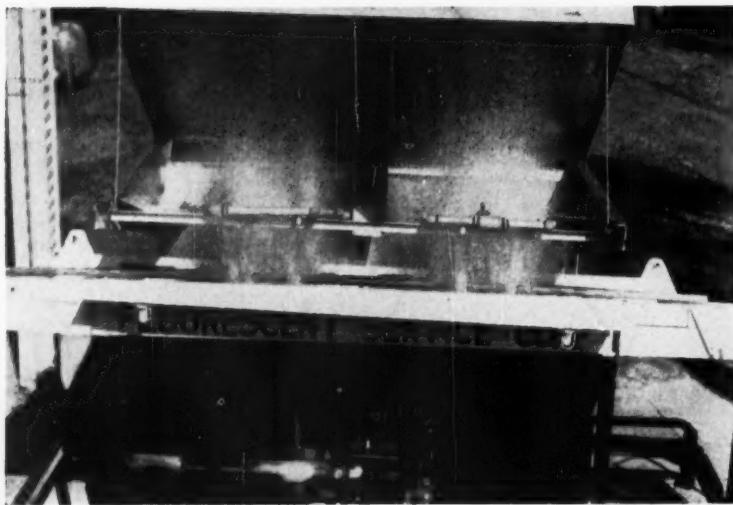
Find out for yourself. Any PREST-O-LITE cylinder will show you. It's built to last. One seam, not three for light weight and high strength. Footring designed, constructed, and coated to prevent rust. Every cylinder tested to twice the service pressure.

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The top is opened to show the upper and lower wash sprays (left) and rinse sprays (right) in action. The center partitions confine the two sprays to their respective tanks. Burners and pumps may be seen at bottom of picture.

Here's the unit in action (below). An employee feeds the end of a roll of corrugated paneling into the machine. Note the force of the spray.

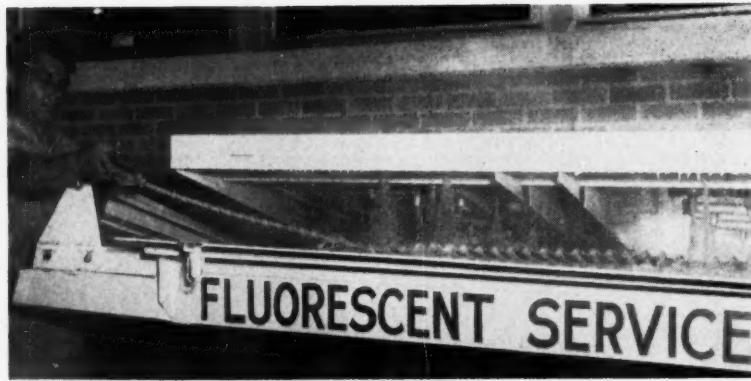
of the advantages of the enclosed lights, but there is a problem. Dust and bugs can accumulate on the panels fairly quickly, especially in warmer weather. Brushing or dusting only sets up an electrostatic charge that causes the panels to attract dust even more quickly.

Fluorescent Service came up with the answer—a trailer-mounted panel-washing machine that cleans faster and more thoroughly than brushing and does not produce static electricity. There was one additional problem, however. Cold water would not do and hot water was not always available on the job. The solution, of course, was hot water heated by LPG.

Dominating physical feature of the machine is the bed which carries the panels through the machine, from the back of the 2000-lb trailer to the front. This bed is angled at 30 degrees from the horizontal to facilitate run-off.

Twin hearts of the unit are the 20 gal. wash tank and the adjacent 20 gal. rinse tank, both located under the bed and both with their own 60,000 Btu burner, pump, and upper and lower banks of spray nozzles. The burners are fed LPG from twin cylinders located in a splash-proof cabinet at the front of the trailer. The wash and rinse tanks are filled at the job site. While the crew removes the panels from the customer's ceilings, the water is brought up to operating temperature, 140 degrees.

The panels are fed into the ma-



chine manually from a rack that telescopes into the angled bed. The standard 4 ft panel goes through in 20 seconds. Roll-fed corrugated plastic is washed at a 28-ft-per-minute clip. As the panels pass over the tanks, they are sprayed from top and bottom; first with wash solution, which contains a detergent, and then with a clear water rinse.

Hot water speeds up drying, as does a wetting agent used in the rinse water. In the case of rolled panels, the rolls are set on end on a simple drying rack which is a 14-in.-wide board placed on the ground with 11 wood dowels sticking up to accommodate the rolls.

From the LPG dealer's viewpoint, the load is steady, but not spectacular. Much more spectacular is the amount of work it helps accomplish. One customer alone has four miles of fluorescent units, or 32,000 sq ft of plastic paneling! ■



The LPG supply is kept in two cylinders housed in a splash-proof cabinet at the front of the trailer.

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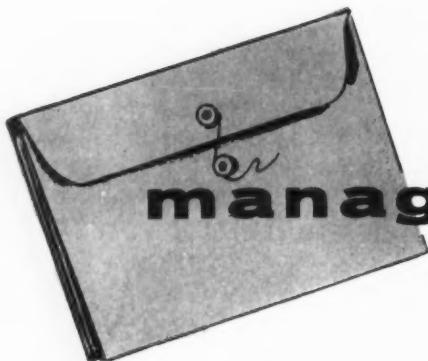
— Rush literature on T-1 Transports

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management portfolio

Approximations may do for tax deductions, but not for your employee-type status

From the tax man's standpoint, there are five different types of employees, and what you can deduct depends upon which type you happen to be.

The tax man will accept approximate deductions if three requisites are met.

An explanation of each of these nine important points winds up this three-part series by E. H. Mitchell, a veteran U. S. tax attorney.

Business taxpayers fall into two broad groups, employers and employees. Employers generally are corporations, partnerships, and sole proprietors. Most employers enjoy one advantage: their permanent accounts and records ordinarily support deductions. Because of insufficient records, officers and other employees have lost many an argument with the tax man. In the course of the struggle at least five distinct types of employees have evolved, each quite differently treated. You can save much time and annoyance by personally classifying yourself before your returns are due. Your tax expert must know your "employee" type in order to properly report your deductions. Here are the five types:

1. Commission salesmen — Subject to the same entertainment rules, proof and method of reporting as sole proprietors, but

enjoy similar advantages. The cost benefits the salesman alone.

2. Salaried officers and other employees who are *required* to entertain, but all costs are directly charged to and paid by employers—only the employer may deduct. If a closely held corporation, costs may be scrutinized, particularly if an officer-stockholder incurred the expense.

3. Salaried officers and employees who are required to entertain and who are fully or partially reimbursed by employers—Must report both costs and reimbursements, unless obliged to, and do, turn in an expense account. Technical exceptions exist. If individual does not account, Form 2106 is recommended.

4. Salaried officers and employees with a *duty* to entertain, but who are *not reimbursed*—The outlay is necessary to salary-earning and is deductible by the officer or employee.

5. Salaried officers and employees with *no* duty to entertain, who voluntarily do so and are *not reimbursed*—Cost not necessary to salary-earning and employers incurred no expense, so no deduction allowed.

Some unfortunate taxpayers have been unable to prove the *exact amount* of an expenditure because detailed records were either lost, destroyed, or never existed. Under certain circumstances, a reasonable estimate or approximation of the amount will be accepted. Of course,

a mere guess is not enough. An approximation will be considered when three requisites are present:

1. It is proved that *some* expense was *actually* incurred.

2. The expenditure must come within the basic rules and tests in the first article of this series.

3. A basis for approximating the amount must be constructed from "reliable secondary sources of information." For example the cost of taking a customer to dinner at a certain hotel during a certain month can be satisfactorily proved by evidence of that hotel's average dinner price during that month.

There is, however, no satisfactory substitute for timely, detailed records showing who, when, why, where and exactly how much. They demand no more time than you spend with your razor and constitute an almost perfect defense against attack.

Of equal importance is your immediate mastery of the simple rules and tests. The expenditure must: (1) have a business purpose; (2) be ordinary; (3) be appropriate and helpful in developing and maintaining the business; (4) be reasonable in amount; and (5) be reasonably expected to benefit your business.

Finally, if you are an officer or other employee, ascertain your own employee "type." Have this data ready for your tax specialist before filing time.

For results, follow the rules!

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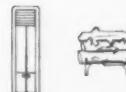
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AMERICA'S MOST COMPLETE HEATING LINE

These are ways dealers hope to balance their load this summer

Hip deep in snow, many dealers at this time of the year are cursing their own super-salesmanship of last summer and fall, when they added househeating customers in near-record numbers but built themselves a king-size peak-and-valley headache in the process. As they desperately keep the wires humming with urgent requests for more gas, each is silently taking a vow that he'll not be caught another winter without a compensating off-season load.

Dealers who plan as well as dream ahead are already immersed in programs for building summer load. Some are optimistic about the immediate prospects, others are more conservative. But there are few, if any, with ratios worse than about 1½-to-1 who aren't hopeful of being able to improve them.

This month, Management Portfolio took a sampling of dealers across the country to find out the magnitude of the problem as it affects each dealer individually, and to learn what each is doing to build load for next summer.

THE DEALER SPEAKS

First, let's hear from John J. Long, Delaware Valley Propane Co., Merchantville, N. J. Long describes his ratio as "satisfactory," which is hard to dispute, since it's 1.3 to 1. Today, his top summer loads are motor vehicles used primarily in the summer time, tar melting, road stands, and summer camps. Collectively, these loads account for approximately 20 per cent of his total annual volume.

Part of the favorable ratio stems from a good storage program. Says Long, "We have a sizable heating load, but we have adequate tank storage, and use it to full advantage, which is an assistance in ratios."

There are other dealers, equally astute, who are less successful in

coping with the problem. One is Gaylen Frey, who has built Modern Equipment Inc., Michigan City, Ind., into an excellent operation. The best he can do today is a 3-to-1 ratio, which he admits is only "fair." His summer loads, which aggregate only 8½ per cent of his annual volume, include summer resort business, restaurants, fork lift trucks, and tractors. Respectively, they account for 5 per cent, 2, 1 and ½ per cent of the total.

Frey hopes he can bring the ratio up to 2-to-1. How? "With more fork lifts, tractors, gas lights, and air conditioning (?)." As for this last-named load, Frey says, "I hope air conditioning equipment can be developed, such as the free-piston job."

Down in the Southeast, along the Atlantic Seaboard, some dealers appear to have the problem pretty well licked. C. A. Childers, head of Sungas Distributors, Raleigh, N. C., has a 1-1 ratio. This is all because of tobacco curing, which takes between 20 and 25 per cent of his annual volume. "Our winters are not too severe and we have not gone after heating in the volume other dealers have so we are all right on ratio," says Childers. "In tobacco curing, the average customer will use 1000 gal. per barn per year. Therefore we are in good ratio shape. Tobacco curing is growing. All this gas is used in July and August.

" . . . This is the condition (of) many dealers in North Carolina and South Carolina and Georgia. Of course, where the dealer has put up a load on heating primarily he is in trouble, but we try to put in enough bottled gas installations to work in balance to our bulk."

Sungas could do even better than 1-to-1 if it desired, opines Mr. Childers—it could develop an inverse ratio. But he has no intention of so doing.

Down in Summerville, S. C., Coastal Butane Gas Corp. has more difficulty with its ratio. Today it's 2-to-1, and J. R. Herrin is quick to say he'd like to see it improved to 1-1. Today, his principal summer loads are grain and tobacco curing, automotive, fork lift and tractor fueling.

Art Peterson at Utility Gas Co., Gaylord, Minn., is hoping that a big farm tractor conversion promotion will help shave his present 3-to-1 ratio to 2½ to 1. His most effective method of building loads has been to push "farm tractor fuel sales, and to sell more ranges, clothes dryers, and water heaters." His best summer loads at present are "motor fuel, which accounts for 5 per cent of the annual load, and stock tank heaters."

Near Golden, Colo., Ernie Knutzen of Golden Gas Co. is putting his money on increased industrial loads, mobile equipment, gas lights, and camping equipment to improve an admittedly unsatisfactory "75-25" ratio. The industrial and carburetion loads loom biggest, however; Knutzen thinks he might be able to improve the ratio as much as 25 per cent with just these two types of loads. Specifically, he is banking on "construction, cement companies, and carburetion on trucking equipment."

As of now, however, his big summer loads are swimming pools, pipeline construction equipment, trucking equipment, and fork lifts (Coors brewery and Tin Cup Lumber Co.). He expects the swimming pool load to increase, incidentally.

In California, one of the biggest companies in the business, Suburban Gas Service, Pomona, is aiming for improvement of a 1¼-to-1 ratio. President W. R. Sidenfaden thinks it can be improved 20 per cent. He expects to accomplish this with a two-pronged program consisting of (1) a sales promotion campaign to emphasize summer uses, and (2) the construction of two 100,000-bbl. salt dome storages.

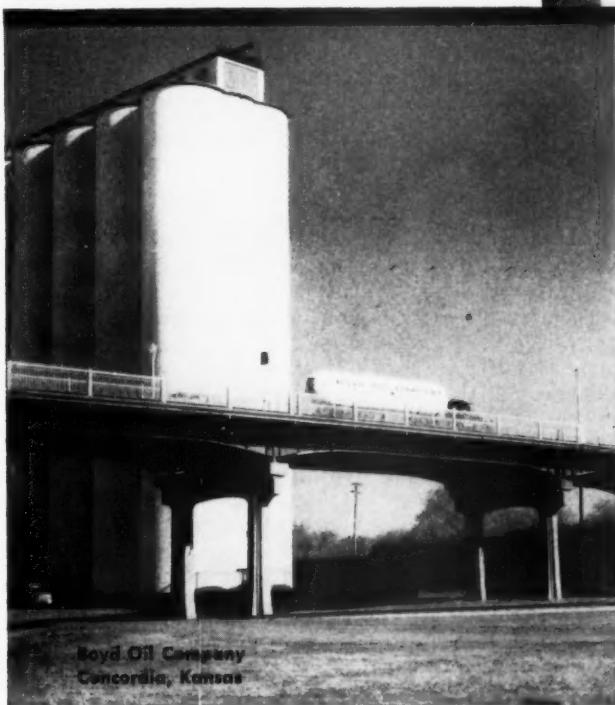
At present, Suburban's principal summer loads are carburetion, weed burning, and industrial boiler fuel. Says Sidenfaden, "Our most effective method of building summer load has been through the

EAST, WEST, NORTH OR SOUTH— THE STORY'S ALWAYS THE SAME

Cities Service Distributor's summer sales booming

Most distributors are concerned about their slack summer sales but not Tri-Gas. The attractions of Lake Michigan and the National Music Camp of Interlochen triple the population of Traverse City and keep Tri-Gas operating at peak load.

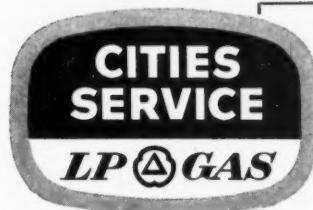
During winter Tri-Gas keeps the propane using residents warm . . . even with the 150 inches of snow they received last year. Leon Overholt, President of Tri-Gas, states, "Cities Service has been our supplier since we started 12 years ago. Service has been excellent and delivery has never been a problem since we are practically sitting on the Cities Service 20-million gallon underground storage facilities at Lowell, Michigan."



For 5 days Boyd Oil supplied Concordia, Kansas with their only source of gas

It was summer and the river went on a rampage in Concordia. The natural gas pipeline was torn apart. Townspeople could not cook . . . restaurants had the same problem. The dairy in town needed hot water . . . a hospital was without cooking facilities. The town turned to Boyd Oil and Hugh Boyd put in a call to Cities Service for an emergency order of LP-Gas. Boyd Oil mustered every piece of spare equipment and worked day and night successfully serving the crucial spots with gas.

Regarding Cities Service, Hugh Boyd says, "I've never had another supplier and see no need for one. The service from Cities Service has always been great and I know I can count on them when an emergency comes up."



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South Bend 1, Indiana

500 Robert Street
St. Paul 1, Minnesota

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Cleveland 15, Ohio

7730 Carondelet Ave.
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170 University Ave.
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Des Moines 13, Iowa

626 E. Wisconsin Ave.
Milwaukee 2, Wisconsin



conversion of industrial plants from fuel oil to propane."

Frances Holliday and her partner, Charles E. Nead, of Nead & Holliday, Tateville, Ky., are pleased with their 1½-to-1 ratio—as well they should be. Says Miss Frances, "The summer cooking and water heating loads are good, especially because, in this resort area we have, in addition to a regular home load, a good restaurant and fishing camp load. The industrial and agricultural loads include a chicken processing plant, rock mixing plants, and several lift trucks in lumber yards and industry."

Miss Holliday gave an approximate breakdown of all their loads, which total as follows: industrial plants, 30 per cent; cooking and water heating, 40 per cent; agricultural, 20 per cent; househeating, 10 per cent.

Nead & Holliday has launched a big "L. P. gas carburetion in industry" promotion, with the accent on lift trucks, in an effort to build more off-peak load for next summer. On the negative side, Miss Frances reports, "So far as househeating is concerned, we plan to refuse to take any more heating jobs unless the home owner will properly insulate his residence and will install adequate heating equipment."

Back on the East Coast, at Edgewater, Md., Arundel Gas Co. already has an extremely favorable ratio, due primarily to its summer resort business. Last year's peak month was January, when 318,449 lb. of gas were sold; the worst month was October, when sales "slumped" to 210,374. Eliminating these two months, the rest of the year looks even better: August sales, for example, were 238,470 lb., while February was 284,305. Biggest summer loads are summer cottages, restaurants, and public beaches, and boats.

"The ratio is satisfactory as of now," reports L. H. Parlett Jr. "But as we continue to sell more heating this picture will change. As of now over 75 per cent of our business is domestic cooking and water heating—a very stable volume the year round."

Warning

Don't sacrifice efficacy of excess flow valve for higher pumping rates

Increasing the pressure drop across the valve can render it inoperative in an emergency.

RALPH H. ENGSTROM • Assistant Vice President, Bastian-Blessing Co.

As is well known, there is a trend toward increasing the pumping rate of tank trucks. Economically this trend is desirable for, if an operator can put his vehicles to greater use by pumping faster, he can transport more fuel per working day, and thus increase his profits.

In up-dating older tank trucks that were designed in years when present-day pumping rates were unheard of, a change will need to be made in the capacity of the excess flow valve. This may pose a serious problem.

The problem is to increase the flow. It is sometimes felt that all that is necessary to obtain greater pumping capacities is to replace the original excess flow valve with one that will handle a larger flow before it will close. But the old tank has only relatively small openings.

Most people think of excess flow valves only in terms of capacities in gallons per minute. You can buy them in various pipe sizes and various flows—10 gal. a minute—40 gal. a minute—100 gal. a minute—as high as 250 gal. a minute. In general, the pipe size will increase as the closing flow rating increases, so that if you want a bigger capacity excess flow valve, you have to go to bigger pipe sizes. However, you may have noticed in looking through manufacturers' litera-

ture that there are in some cases different flows available for the same size pipe thread. This leads many to believe that for a given pipe size excess flow valve, it is only necessary to get the manufacturer to provide a stiffer spring in order to attain a greater closing flow.

A stiffer spring will provide a higher closing flow rate, but the point that is most frequently overlooked is that a greater pressure drop will result. Flow and pressure drop, in fact, go hand-in-hand. Therefore, if you put in a stiffer spring, you're going to have to pump harder to get the higher flow through the restriction of the excess flow valve. The stiffer the spring and the higher the closing flow, the greater the pressure drop across the excess flow valve, and the harder it will be to pump through the valve. Now, in addition, if you are restricted by considerable piping throughout the rest of the installation—if there are numerous fittings, tees, crosses and elbows and other restrictions along the line—you may be getting to the point where you don't have adequate protection if something happens to the pipeline beyond the excess flow valve.

It should be remembered, then, that each excess flow valve with its specific flow rating is also asso-

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Higher pumping rates...150 per cent rating factor works in most installations

ciated with a certain pressure drop. Therefore, when we speak of an excess flow valve with a closing flow of 100 gpm, we can also say that this valve will close when the flow of liquid is sufficient to give a pressure drop across the valve of (let's say) 2 psi. This is logical, because if you pump fast enough so that the pressure on the inlet side of the excess flow valve is 2 psi greater than the pressure on the outlet side, this is just another way of saying you're getting 100 gpm through that particular valve.

Now, these values do not always relate in the same way for all valves; you can have another type or model excess flow valve which also closes at 100 gpm, but the pressure drop necessary to get 100 gpm through that excess flow valve may be (let's say) 4 psi. If both of these valves are of the same pipe size, obviously the one that requires only 2 psi of differential to get 100 gpm through it is the more desirable, safer valve. Usually, however, you will find that the valve with less pressure drop is larger in pipe size.

From a practical standpoint then, how can one meet this problem of getting greater flow yet staying within adequate safety limits? There is no easy answer. To provide bigger threaded openings in the tank involves returning the tank to the manufacturer so that the work can be done properly and in conformity with codes and regulations. To make use of the present openings with higher-rated excess flow valves requires caution that the installation does not become unsafe due to the higher pressure drop necessary to close the valve. (In most cases, if unused openings are available on the tank, they can be put to use as liquid openings for increased pumping.)

The question frequently comes up as to what excess flow valve rating should be used in a given installation. We feel that a rating of about 150 per cent of the expected normal flow is just about

right. For example, if you normally expect to pump 50 gpm, then you should have an excess flow valve that closes at about 75 gpm. There may be circumstances that will alter this rule a little one way or the other, but the 150 per cent factor has been found to work out quite well in most installations.

Another question frequently asked of excess flow valve manufacturers is, "Well, now, if I substitute such and such an excess flow valve will that do the job?" This is pretty difficult to answer directly. Of necessity, we must reply that the ultimate test of an excess flow valve is a test under simulated accident conditions where the worst possible circumstances are present. The only way to make a real check is to simulate a break at the farthest point in the line downstream from the excess flow valve by suddenly cracking a valve and seeing if the excess flow valve shuts off the gas. If it does, you can feel reasonably certain that it will do its job in protecting against a break anywhere from between that point and the tank itself, because the closer to the tank the break occurs, the easier will it be for the flow to reach the closing flow of the excess flow valve. ■

Adapted from a talk presented before the annual convention of North Carolina LPGA.





Texas Butane Dealers Association's own experts—its directors—were impaneled to advise members on problems incident to the diminution of butane on the retail market. The open

session took place at the annual midwinter meeting, in Fort Worth Jan. 16, and was in good measure responsible for a record turnout of 246 members.

Dealers react to the "butane shortage"

"What are we to do with old tanks?"

Texans ask TBDA directors' panel

A NAGGING apprehension over the threat of a coming butane "shortage" brought a record turnout for the ninth annual midwinter conference of the Texas Butane Dealers Association in Fort Worth January 16.

The question that burned in the brain of every one of the 246 members in attendance was: "What are we going to do with all the 80- and 100-lb tanks now out in the field?"

The association set up a panel session to search for answers. Seventeen directors and past presidents crowded the "roundtable" on the rostrum, and President J. L. Weathers, Petersburg, was moderator.

Weathers set the stage with a resume of events leading up to the panel session. An investigation into the supply situation had been sparked by an article appearing in the *Oil & Gas Journal* last fall, which predicted a growing shortage of butane on the retail market. In essence, the article's theme was that the demand for butane in the manufacture of premium gasolines was increasing rapidly, diverting growing volume of the product. Experts quoted by the magazine foresaw its eventual disappearance from the market. (See also BPN, January 1960, p. 34.)

The article had spurred the association leadership to call a meeting of the board of directors on November 5. There they asked themselves, "What should TBDA do about the problem?" There were many shades of opinion among the members, but before they had adjourned it was clear that they still needed answers to these questions:

"Is there, truly, a supply problem?"
"If so, how imminent is it?"

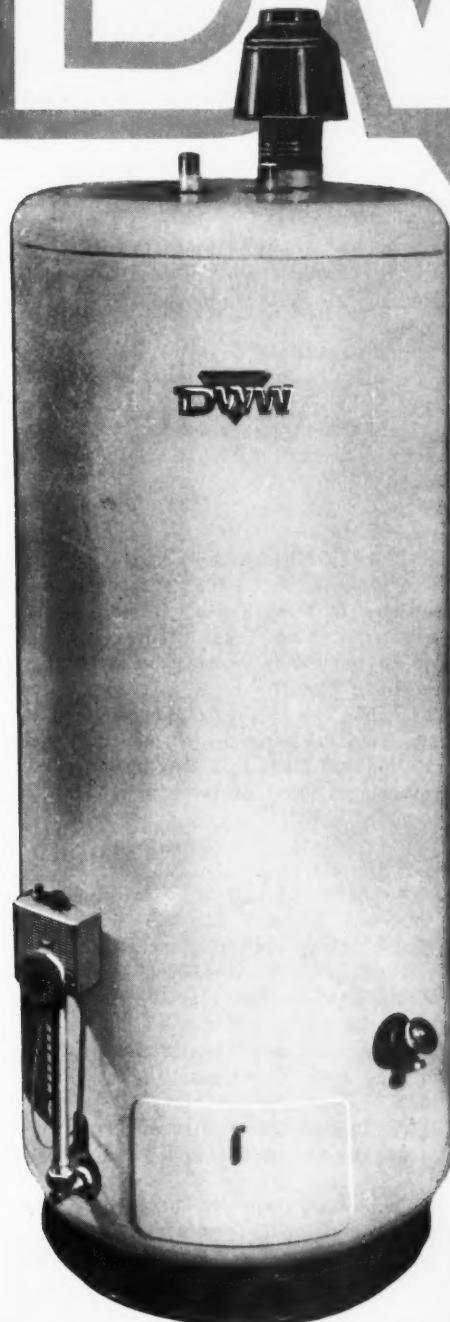
The board decided (continued Mr. Weathers) to call together representatives of refining companies to learn what their answers were. Eight companies responded to the invitation, and in mid-December a meeting was held with them.

In brief, their appraisals of the situation were in general agreement on these points: First, more butane is being and will be produced than ever before; second, in spite of this, normal butane will eventually disappear because of the demand of competing markets.

STAFF REPORT

D·W·WHITEHEAD

DWW

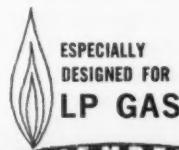


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"Butane shortage" • Continued

This, said Weathers, merely confirmed what the dealers believed already. The burning question then was "when." Here there was a notable lack of agreement. Estimates varied from two to 10 years. But all were agreed on this fact: the day of the 100-lb tank is over.

"This leaves the toughest question still unanswered: 'What will happen to the vessels that are now out in the field?'" At this point, Weathers yielded for a general discussion, with most questions coming from the floor, most suggestions being offered by the directors on stage.

There was some discussion as to whether butane was actually physically going off the market now. This appeared to be something of a local affair. Said Eddie Clifton, Lubbock, a director, "We in the Plains area are seeing the shift sooner than elsewhere. There are lots of gasoline plants there, but the pipelines and underground storage came in and posed problems for the dealers. Now they have to go greater distances for their butane."

Later on in the discussion, ex-president Jack Walcher of Midland was asked, "Are some refiners in West Texas *not* selling mix?" Said Walcher, "Some never sold any." R. H. Dwigans of El Paso added, "One refiner took all his butane off the market in our area. . . . Another will sell some."

There was general agreement that price was the big factor rather than physical shortage . . . dealers will still be able to buy it if they will pay the price. As Walcher said, "When we talked to the refiners, they told us they were obligated to their stockholders to get the best price they could."

Where is the price headed? Today, there's a "going" differential (butane vs. propane) of about one-half cent on the average. Walcher said he understood the differential might widen to 1½ cents "later."

Weathers added: "We asked a refinery representative this same question. He said that 12 months ago he could not foresee the one-half cent differential that we have today, so he hesitated to make a prediction for the future."

Walcher said that the refiners had estimated the price of butane might run from 6 to 10¾ cents.

The question was raised as to whether most dealers have put prices on a "double standard" or whether they have absorbed the one-half cent increment. Said Past President Claude Ribble of Paris, "We pay more for butane but we charge the customer the same price. But if the difference goes up to a cent, we'll probably have to increase the price."

Like supply, price appears to be subject to

local conditions. There are spot surpluses, which affect the price picture according to time and place. Dwigans noted that in West Texas, refineries cannot use all their butane in the summertime, so—in spots—it's in long supply. This prompted the question from the floor, "Will summer butane go back to propane prices?"

"Maybe," said Dwigans. "There's a shortage of storage in places. Some companies are paying demurrage on tank cars to use them as storage. It's a spot picture."

The question of how widespread is the use of butane tanks today was discussed at some length. Eddie Clifton offered the thought that "some of us who have leased tank programs still have 30 to 40 per cent of them in butane, and we should start working now to convert."

Claude Ribble added: "After listening to the refiners' representatives, we concluded that propane is our only out. In the past 8 to 10 years we haven't put in any butane tanks—still, 30 per cent of the domestic business is still butane. The tanks are getting old and have about served their purpose."

Later on he said: "We were surprised to find many Gulf Coast dealers still selling butane tanks. Actually propane tanks are cheaper to install and they are good, all-purpose tanks. We tried in House Bill 4 (before the state legislature) to outlaw the sale of 100-lb tanks. It lost out."

Dwigans reported that a producer's representative had told him he had recently seen a carload of 100-lb tanks on the railroad, headed for somewhere in West Texas. He himself noted, however, that west Texas refiners had warned about an impending shortage of butane right after World War II.

The nub of the dilemma, "What to do with old tanks," kept cropping up. From the floor, the suggestion was made that they be converted for the storing of lower pressure materials. Diesel fuel, particularly.

Past President Paul Thompson of Weslaco agreed. He offered the thought that, since there was a profit on the sale of the original tank to the customer, a dealer might be willing to cut out that profit on the replacement tank.

From the floor: "Junk dealers will buy them."

"It's against the law to sell them to a junk dealer."

"The big problem is, they are a potential hazard in the field. We've got to get them out of the field."

"We've inverted those we retired from service. We took the valves out and filled them with sand."

"We can steam them out, cut them up, and sell them for junk—wouldn't this be legal?"

"Whether legal or not, it wouldn't be very

BUILT-IN



Above: AMF's Mechanical Research Division combines with Beard in developing T-1 Steel Transports that give longer, safer service.

Right: Fifty strain gauges reading internal strain of the steel in units of one half-millionth of an inch (0.0000005) takes the guesswork out of Beard T-1 Payliner designs.



"SAFETY FIRST" is more than a saying in Beard's transport division. Scientific research teams analyze new designs for safety, operational efficiency and durability. Shown above are AMF-Beard stress analysis engineers making 50 individual strain tests on a Beard T-1 Steel Payliner transport. Information gathered over hundreds of hours of exacting tests such as these are your assurance that the Beard T-1 Steel Transport you buy will give maximum service for many years . . . and do it SAFELY.

You get other advantages too, when you buy a Beard T-1 Payliner. Every step of fabrication from selection

of steel to stress relieving the finished tank, is done at Beard under the skilled supervision of experienced transport men.

Check these Bonus Features:

Certified capacity • Stress relieved • 100% X-Ray of all seams • Approved floating-step baffles • UL approved fittings and valves • Air lines protected by steel conduit • Lighting ICC with vapor proof wiring • Adjustable rub plate • 1-Jet Splash Filler • 2-2" Vapor Openings • 3-3" Liquid Openings.

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ON EACH BULK TRUCK...

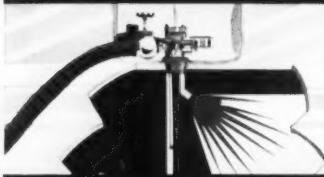
Save up to \$2,215.00 a year with Beaird Jet Filled LP-Gas Systems!



HOSE SAVING HORIZONTAL FILLING CONNECTION—Prevents accumulation of snow, water or trash in valve opening. Reduces operator fatigue—speeds filling.



SAFE LIQUID WITHDRAWAL OPENING—with new Rego Chek-Lok excess flow valve—for economical truck and tractor fueling. Built-in excess flow valve held shut until released by insertion of shut-off valve.



FAST JET FILLING—Saves gas, requires no vapor return hose. Fills at full bulk truck pump capacity.

National figures prove that it costs nine cents a minute to keep one bulk truck on the road. Filling a standard dip tube type 250-gallon LP-Gas system requires nine minutes and costs the dealer 81 cents. Yet it can be done in only two and eight/tenths minutes, for a savings of 54 cents, when the dealer takes full advantage of the faster filling rates possible with Beaird Jet Filled LP-Gas Systems.

Designed to fill at maximum pump rate (up to 70 gallons per minute) without a vapor return line, Beaird Jet Filled LP-Gas systems turn pump rated capacity into full usable capacity. With this combination, a high capacity pump and Beaird systems, savings up to \$2,215.00 a year in filling time are possible with each bulk truck you operate.

Money saving filling rates are only one of the many advantages dealers have when they standardize on Beaird LP-Gas systems... *here are other plus features:* Highest Quality Construction • UL Approval • Moisture-free-complete dehydration • Dealer Merchandising Aids • Stocking Point Program • Long Term Financing for Lease Plans • Complete Range of Sizes.

Send for Bulletin #2669 today... the filling rate charts show how much you can save with your bulk truck plus Beaird Jet Filled Systems.

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another  product

LP-GAS & NH-3 EQUIPMENT

"Butane shortage" • Continued

economic. A tank manufacturer told the dealers that scrap steel brings \$33 a ton. "You might get \$10 a tank," he opined.

Director P. S. Brown of McAllen wondered if the ratings on the old tanks might not be stepped up. Many, he said, were heavier gauge than was called for, and could actually withstand higher-than-rated pressures. From the floor it was suggested that some might go to 175-psi ratings.

The tank manufacturer was not optimistic. The railroad commission (which has LPG jurisdiction in Texas) had been approached, he said, but was not receptive. He pointed out that the mere ability to withstand greater pressures did not take into account the necessary safety factors as required by code.

From the floor: "We've tried to explain the situation to our customers but have had a lot of trouble. Could the association help us get our story across to them? They think that 'Butane' means LPG."

Weathers and the panel were stumped for an answer to that one.

The session lasted for about an hour and a half. At its close, Weathers made the rounds of the panel for a summation. Some advice:

"We have a real problem: people ask, how long will it be before butane will be off the market? Customers get alarmed—they think 'butane' means all LPG. They are frightened by statements made by the implement dealers, too. We should emphasize that we will have a cheaper fuel—propane—for the customer"—W. R. Taylor, Plainview.

"In East Texas, there's no shortage as yet. We have the impression that the refiners are not going to take it away from us."—Guy Highnote, Canton.

"Trying to look into the future is about like trying to forecast the weather. . . . Some of the old underground tanks have about had it now."—M. L. Bussey, Center.

"Propane is a better fuel, a more all-purpose fuel. Customers in Paris want propane rather than butane."—C. D. Ribble, Paris.

"Plenty of propane will be available, and there will be butane available for a while. Get your house in order. Meanwhile, let's not get overly excited about it."—Elmer L. Atkins, Arlington.

"Don't push the panic button. Let's have an orderly changeover."—Jack Walcher, Midland.

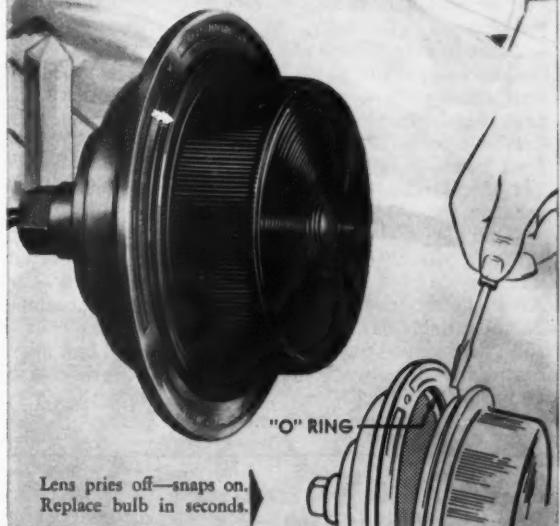
"Let's start calling it L. P. gas."—Eddie Clinton, Lubbock.

"Let's start educating the customers."—E. O. Sharp, Smithville.

"Old butane tanks have lots of uses. We have sold some for spraying. We can get rid of them if we try."—J. C. Rice, Bay City. ■



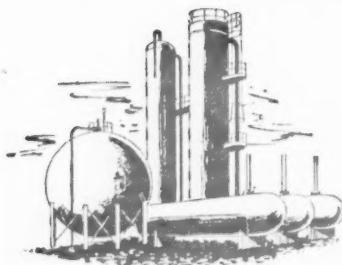
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Vapor-proof safety lamp





industry news

Home furnace of the future may be no larger than a refrigerator coil

H. T. Gilkey, director of technical services for the National Warm Air Heating & Air Conditioning Association, foresees a home furnace of the future that may be no bigger than a refrigerator coil.

According to Gilkey, the furnace heat exchanger can be made a great deal smaller as a result of some new developments. Pointing out that considerable work has been done recently in developing methods of catalytic combustion, using gaseous fuels, he elaborated:

"One device consists of a porous ceramic tube into which a gas-air mixture is fed under pressure. After the mixture has been ignited on the outside of the tube and the tube has come up to temperature, essentially flameless combustion is maintained.

"The tube glows and has a sur-

face temperature of 2000 deg. That gives you heat to warm the air that is fanned through your house.

"Another device uses a stainless-steel tube.

"Thus, dimensions of the new furnace could be about half the size of a present-day compact warm air furnace and the efficiency could be increased 10 to 12 per cent. Chimney requirements would be reduced as well," he added.

Gilkey indicated that the new equipment will not be on the market for several years.

"Controls, valves, and fans must be developed to go along with the projected furnace. The things we must accomplish," he said, "are simultaneous control of temperature, humidity, cleanliness and distribution of the air. The over-all objective is comfort for the occupants."

Fight to end co-ops' tax break may bear fruit in 1960

The years-long fight by L. P. gas dealers and other businessmen to end the discriminatory tax break granted to cooperatives may bear fruit this year.

President Eisenhower is again urging Congress to close the court-created loophole which permits co-ops to escape paying most of their taxes and gain a cost advantage over normal businesses.

Leaders of the powerful House Ways & Means Committee are also favoring closing the loophole. The Committee held several days

of hearings in February on possible methods of ending the discrimination.

Opposition to restoring a single tax on co-op profits has diminished considerably, although it has not vanished, the hearing showed.

Even the powerful Farm Bureau Federation favors a single tax on all net savings and income of farm cooperatives, paid either by the cooperative or the patron, as it is earned.

At present, under a 1951 court ruling, a co-op which sells to farmers and others (many have no farm connection), or markets farm prod-

ucts, can distribute patronage refund certificates. This is considered a liability to the co-op, and makes profits not taxable, but is not taxable to the patron either unless and until it is redeemed in cash. Most never are.

Plans for imposing a single tax on co-op income vary somewhat. Leading Democrats on the Ways & Means Committee are pushing for a plan to simply require the co-op to attach a cash value to the certificates. This would mean the patron would have to pay a tax, even though he did not receive any cash.

This system would tend to discourage use of such certificates, or at least require co-ops to issue enough cash in refunds to pay the tax on the certificates. Either way, it would make trading at co-ops less attractive and less of a saving for a patron by requiring him to pay an extra tax and by forcing higher prices by reducing the amount of tax-free earnings the co-op could retain.

The administration is backing the program it suggested last year. This would require a co-op to redeem its certificates in cash within three years, paying the member 4 per cent interest for the period, or if not redeemed to pay the tax itself at the face value of the certificates.

The Farm Bureau generally supports the administration's proposal to apply the tax specifically at one level or the other.

ASA's Installation of Gas Appliances, Piping available

Printed copies of the third edition of the American Standard Installation of Gas Appliances and Gas Piping, ASA Z21.30-1959 are available from the AGA, 420



Do you have this kind of help to win new customers for your gas and appliances? Above are just some of the promotion materials to help Skelgas dealers boost volume this Spring during the big "Switch and Save

Sale." Besides full-color, 2-page spreads in Saturday Evening Post and Farm Journal, Skelgas retail sales tools include direct mail, window banners, pennants, folders, dealer radio commercials and newspaper ads.

Does Your Gas Supplier Give You Local Sales Help Like This?

From big colorful ads in national magazines, clear through to retail aids that help close sales . . . Skelgas is supplying its dealers with a complete business-building promotional program that will enable them to ring up record profits this Spring.

This spectacular "Switch and Save Sale" and other hard-hitting promotions planned for 1960 give Skelgas dealers the kind of support that pushes extra business their way. The record proves it. Year after year, Skelgas dealers increase their sales at nearly double the rate of the LP-Gas industry as a whole. And more LP-Gas appliances are sold under the exclusive Skelgas brand than any other.

What gives this selling edge to Skelgas Dealers? Here are just a few of the important advantages that are built into every Skelgas franchise, advantages that mean more profit for you:

1. The best-accepted brand name in the industry.
2. The highest-quality products in the industry.
3. The industry's most powerful advertising support.
4. The most complete retailing help in the industry.

In addition to these sales-building advantages, Skelgas offers many other technical and financial services to help its dealers operate more profitably. Mail this coupon now and find out how you can cash in, too.



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SKELGAS MARKETING
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P. O. BOX 436
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Please rush me your new fact-filled free booklet which explains the competitive advantages that only a Skelgas franchise can give me!

Name

Address

Town State



Lexington Ave., New York 17, or the AGA Laboratories, 1032 E. 62nd St., Cleveland 3. This handy installation standard has again been printed in the 4 x 6 in. pocket size for convenience of the user.

The publication outlines the basic standards governing the installation of gas appliances and gas piping using low pressure fuel gases not in excess of $\frac{1}{2}$ lb per sq in. It also includes coverage for appliances and piping installations using undiluted L. P. gases which heretofore were not included. Extensive revisions have also been in-

cluded in the new standard covering the venting of gas appliances and provisions covering air for proper combustion.

Single copy price for Z21.30-1959 is 50 cents. Quantity discounts are available.

Joint research, development plan covers the fuel cell

Pratt & Whitney Aircraft is undertaking to expand work on developing and manufacturing highly efficient fuel cells. Fuel cells employ low-cost hydrocarbon fuels

such as propane, with air as an oxidizer, to generate electricity.

Leesona Corp. and Pratt & Whitney, a division of United Aircraft Corp., have announced an enlarged joint research and development program covering the entire field of the fuel cell.

The fuel cell is a unique power plant which converts chemical energy into electricity directly, within itself, without the need of conventional electrical generators. The attractiveness of the fuel cell stems from its inherent ability to generate electricity at about one-half to two-thirds the fuel consumption rate of the best diesel-electric and steam turbine-electric systems. It has possible application for space, land and marine vehicles.

Uses for the carbox fuel cell, now under development, would be as a power source for industrial power generation, vehicle propulsion, electric welding equipment, and similar types of applications where the cost of producing electricity is an important factor.

Five six-cylinder tractors offered by Harvester

Five six-cylinder L. P. gas tractors, the Farmall 560 and 460 and the International 660, 560 and 460, are now available from International Harvester Co. with specially designed engines to obtain maximum economy.

In announcing its extensive L. P. gas line, the company points out that 500,000 such machines are operating on U. S. farms, representing 10 per cent of the total tractor work force. More than 12,000 new L. P. gas tractors were manufactured last year, industry figures show, and nearly 85,500 such units were converted to LPG during 1958.

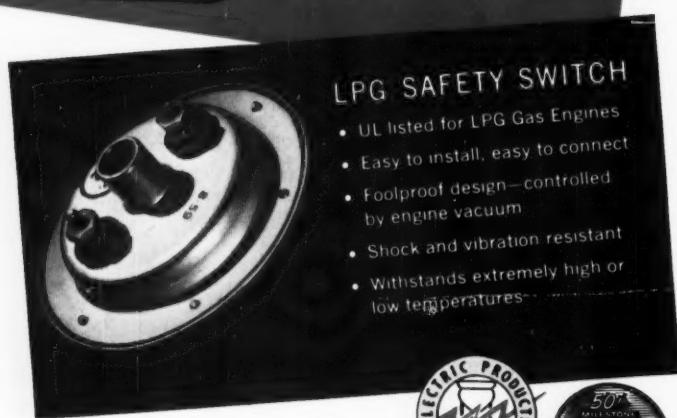
Associates Investment acquires assets of Purchase Plans

Associates Investment Co., South Bend, Ind., a time sales finance company, recently acquired the assets in excess of \$20 million of Purchase Plans Inc., a subsidiary of the Weatherhead Co., Cleveland, Ohio.

Purchase Plans has been a specialized sales finance company offering time sales programs to manufacturers of L. P. gas equipment, farm machinery and equipment, and steel structures. All financing programs developed by Purchase Plans will continue.

NEW! LPG VALVE and SAFETY SWITCH by McQUAY-NORRIS

FOR ORIGINAL EQUIPMENT AND REPLACEMENT USE



McQUAY-NORRIS MANUFACTURING CO.

ELECTRIC PRODUCTS DIVISION, ST. LOUIS 10, MO.

60 YEARS IN THE MANUFACTURE OF PRECISION PRODUCTS

TIME TO BOOST SALES

**WITH
COLOR BACKGUARDS**

**NEW! BACKGUARDS
NOW! IN 6 COLORS**

Exclusive with *Enterprise* Centennial Styleline Ranges

You'll hit a new high in sales with Enterprise Centennial Styleline Ranges . . . because colorful backguards boost business! Every housewife wants the range with the backguard that matches her kitchen and electric appliances! They sell!

Interchangeable backgrounds come in 6 Decorama colors and white for every 36" Enterprise Styleline Range and every 30" Enterprise Styleline Range.

- Only \$1.00 more for Enterprise Ranges with color backguards.
 - Great, sure-to-sell feature that'll pull in profits for you.



Coral Pink **Midnite Black**
Canary Yellow **Chinese Red**
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100 ENTERPRISE-ING YEARS

NEW AMERICAN® WC-45-LPG



Designed to Provide Ideal Metered Service for Average LP-Gas Loads

The modern design and attractive appearance of the WC-45-LPG pleases customers instantly—and keeps them satisfied throughout years of dependable service. Its sturdy, light weight, welded steelcase construction includes these quality features to assure accurate measurement from pilot load to rated capacity, at lowest possible maintenance cost:

- Internal, counter-type, tamperproof index for easy meter reading.
 - Removable soldered top for easy meter accessibility.
 - Bellows-type, molded Duramic diaphragms for LP-Gas service.
 - Long-lasting, one-piece Nylon valve guides.
 - Lifetime corrosion protective finish.
 - One-piece, corrosion and impact resistant plastic index box glass ends breakage problems.
 - Wall mounting lugs for quick installation.
 - Tangent adjustable through meter inlet without removing top.
 - Synthetic grommet-type flag rod seals for minimum friction.
 - Oil impregnated, porous bronze bushings.

Rated capacity 45 cfh propane and 40 cfh butane at $\frac{1}{2}$ -inch w.c. differential — 5 psi working pressure — $\frac{1}{2}$ -inch F.P.T. connections — shipping weight 8 lb.
F.O.B. Philadelphia

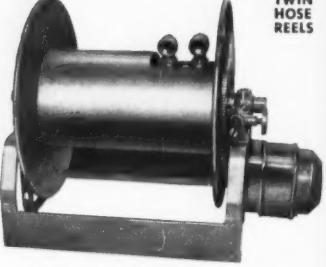
Ask your American representative for full details.



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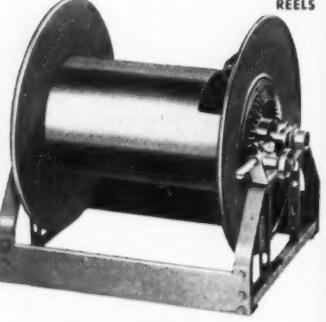
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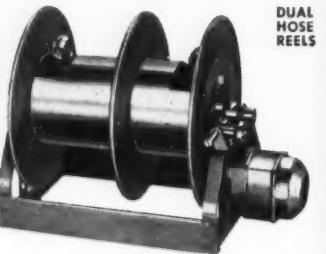
TWIN HOSE REELS

every type



SINGLE HOSE REELS

every capacity



DUAL HOSE REELS

in hand wind and power drive

When you order hose reels, specify "Ardmore"... for quality, proper performance and years and years of trouble-free service. Complete choice of types and capacities to meet your exact need.

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Write for Bulletin 101



Coincident with the annual Silver Quill dinner in Washington, D. C., top special event of the year for the business press, AGA Managing Director Chet Stackpole celebrated a birthday. In commemoration of the event, the Chilton Co., publisher of BUTANE-PROPANE News, presented Stackpole with a handsome brief case. Doing the honors (in the Chilton suite in Washington) is Frank Chapman, BPN publisher (second from right). Top officials of both LPGA, and the AGA were guests of Chilton for the dinner. From left, H. Leigh Whitelaw, GAMA's Washington representative; Wister Ligon, president of Nashville (Tenn.) Gas Co. and the AGA; GAMA Managing Director Harold Massey; Stackpole; Bill Harper, BPN's eastern editor; G. Carroll Busby, president of the Chilton Co.; Lee Brand, Empire Stove Co. vice president; Chapman; and F. L. Fagan, Granite Quarry, N. C., president of the LPGA.

Honolulu Gas supplies LPG to \$18 million housing project

Honolulu Gas Co. is supplying LPG to the 1140-home Iroquois Point Capehart project at Barber's Point Naval Air Station, one of the largest military housing projects in Hawaii.

Honolulu Gas is supplying the new project from special LPG tank installations. These comprise a total of 20 1000-gal. storage tanks. In anticipation of this heavy load on the company's distribution system, it purchased a new 3600-gal. tank truck to augment its Oahu fleet of three 1500-gal. tankers. Six other 1500-gal. tankers are in use on other Hawaiian Islands.

When fully occupied, Iroquois Point is expected to use 1200 gal. of gas per day.

All homes in the \$18 million project are equipped with Dixie gas ranges and Republic water heaters. In addition, gas appliances will go into another 650 Capehart housing units being built at the Navy's Camp Catlin and McGrew Point.

In addition to working with the Navy on housing, Honolulu Gas recently reached an agreement with the Army to convert its mess hall kitchens from oil to gas. At Schofield Barracks alone, the additional load will be almost 1000 gal. of LPG per day.

24-city network will provide sales, service for "Dryex" unit

Delta Tank Manufacturing Co. Inc., Baton Rouge, La., announces the establishment of a 24-city network of oilfield equipment sales offices and supply houses in nine petroleum and gas-producing states. The network will provide direct manufacturer-to-customer sales and service for a full line of oilfield equipment, including Delta's "Dryex" unit which recovers substantial quantities of raw gasoline, butane and propane previously lost in natural gas streams.

Hal S. Phillips, president of Delta, said the new network began operations on February 1.

Office locations include Tulsa, Okla.; Denver, Colo.; Rock Springs, and Casper, Wyo.; Williston, S. D.; Kimball, Neb.; Hobbs and Farmington, N. M.; Houston, Snyder, San Antonio, Dallas, Midland-Odessa, Corpus Christi, Pampa and Wichita Falls, Texas; New Orleans, Houma, Morgan City, Westwego, Shreveport and Lafayette, La.; and Laurel and McComb, Miss.

Phillips said that Delta oilfield equipment also will be available on a non-exclusive basis through Mid-Continent Supply Co. and other distributors with sales and supply points throughout petroleum and gas-producing areas.

Revisions, addenda and one new American Standard available

The American Standard Approval Requirements for Gas-Fired Air Conditioning Appliances, Z21.40-1959, as announced in Highlights last month, is available at \$2 a copy.

The approval of this standard as an American Standard provides the basis on which the AGA Laboratories test and certify gas-fired absorption summer air conditioning appliances under the industry's appliance approval program.

A number of American Standard approval requirements for gas appliances have been revised, becoming effective January 1. They are: gravity and fan type floor furnaces, domestic gas clothes dryers, hotel and restaurant deep fat fryers, hot plates and laundry stoves, domestic gas ranges, and built-in domestic cooking units. Each is available at \$2 a copy.

A number of addenda to present approval and listing requirements also became effective January 1. They are: steam and hot water boilers, gravity and forced air central furnaces, gravity and fan type vented recessed heaters, gas counter appliances, gas-fired duct furnaces, and portable gas baking and roasting ovens.

For information on addenda prices or for any new or revised requirement write the American Standards Association, Dept. PR113, 70 East 45th St., New York 17, N. Y.

Suburban Gas Service acquires Calif. and Oregon companies

Suburban Gas Service Inc. has extended its operations in the states of California and Oregon by the acquisition of two L. P. gas companies with a combined total of six marketing plants, W. R. Sidenfaden, president, announced recently.

The two companies, both of which were acquired for cash and notes, are the Mercer-Fraser Gas Co. with plants at Eureka and Willow Creek, Calif., and Heierman & Janes Propane Gas Service with plants at Redmond, Bend, Madras and Prineville, Ore.

The six plants have combined sales of 2.8 million gal. annually and service approximately 2800 customers.

The company now has a total of 117 marketing plants, serving approximately 73,000 customers in the eight western states.

ICC upholds rail rate cuts, bars restrictions on routes

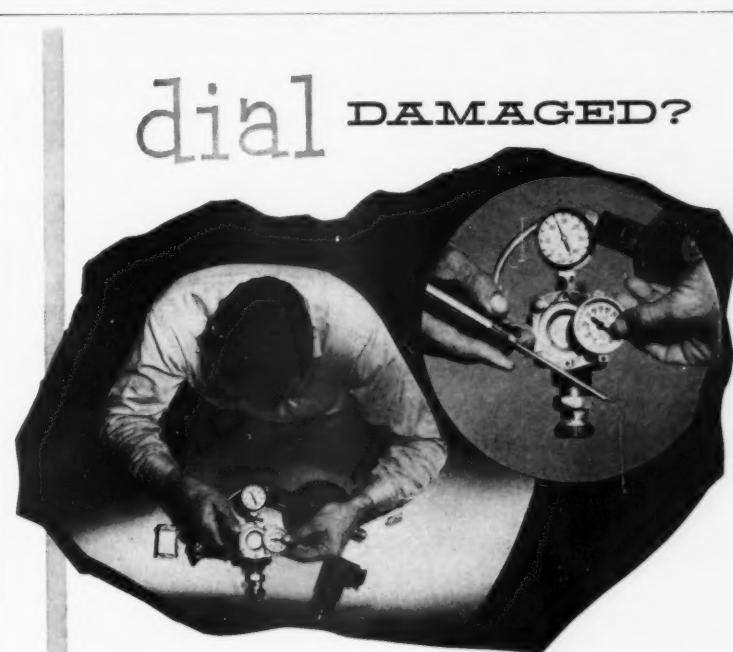
Lower rates for railroad tank shipments of L. P. gas from the Southwest to the Southeastern area of the country will remain in effect it was announced recently.

The Interstate Commerce Commission formally approved the rates, which were put into effect by the railroads last July, subject to approval by the commission. The cuts average 8 to 13 per cent.

At the same time, the commission refused to permit the railroads

to sharply restrict the choice of routes available to L. P. gas shippers. This means that existing storage-in-transit arrangements between these railroads and the shippers will remain in effect. Storage-in-transit gives a shipper the benefits of a rate based on a through shipment, even though gas might be stored halfway to its destination in bulk facilities.

The new rail rates are designed to match existing truck rates for same area, and should give L. P. gas shippers some benefits from increased competition.





A Chiefland, Fla., dealer figures he gets a lot of advertising for his gas and appliance business through the medium of this lengthy billboard. The sign is located on the local dragsters' race grounds. For the rental the sign costs it conveys his sales message to a vast segment of the race fans.

Council's new promotion will start on April 1

The National L-P Gas Council is preparing to launch a big Demonstration Days promotion April 1 to bring customers and prospects into its dealer members' showrooms.

Promotion kits will be mailed to members well in advance of the starting date and will include a timetable and an "idea sheet" to guide them in setting up promotions at the local level.

Other dealer sales aids in the kit are 10 different ad mats, publicity story for local papers, small bill

inserts, 30-second and 60-second radio scripts, jumbo postcards extending an invitation to the demonstrations, posters, pennants, and ad blowups.

Demonstrations of L. P. gas appliances and equipment by council dealer members will extend over a 90-day period, ending June 30. Dealers are advised to work with fram advisers, home economists, and local clubs in setting up demonstrations of such things as ranges, built-in ovens, and farm equipment.

A \$116,000 national advertising campaign will get under way in April issues of well-known magazines and in 23 state farm papers.

Demonstration Days announcements will be broadcast by Don McNeill on his Breakfast Club show over 260 radio stations of the ABC. Dealer members of the council can buy time for local spot announcements at station breaks before and after Breakfast Club commercials.

New wage-hour ruling limits exemptions of dealers

An L. P. gas dealer must not make more than 50 per cent of his sales outside his state, nor more than 25 per cent of his income from non-retail activities, to retain his exemption to the federal minimum wage-hour law.

The law requires firms which are not exempt to pay all employees at least \$1 an hour and time and a half for more than 40 hours work a week.

New regulations published recently by the U.S. Labor Department (available from the Wage-and-Hours Division) list as non-retail sales:

1. Sales in single lot deliveries over 1000 gal.; sales made on a competitive bid basis, including sales to the government and commercial and industrial firms; sales for use in production of a specific product in which the gas is an essential raw material, such as chemicals or synthetics.

2. Sales or repair of tanks for storage larger than 1000 gal.; those sold or repaired on a competitive bid basis; those sold for production of a commercial product, and sales "in quantity larger than involved in the ordinary sales to a farm or household customer."

3. Sales and installation of conversion units for tractors, trucks, pump stoves, furnaces, and other equipment and appliances which involve "substantial modification" of the unit; sales and installations to be used in industrial machinery or equipment; those made on a competitive bid basis, and conversions in excess of "ordinary sales to farm or household customers."

Ike joins LPG men in fighting for removal of REA's subsidy

President Eisenhower has joined L. P. gas dealers in fighting for removal of the subsidy interest rate granted REA power cooperatives who borrow from the government.

In his budget message, the President asked that the interest rate on loans by the REA to power co-ops be boosted from the present

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INDUSTRIAL GAS BURNERS & FURNACES
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PIPE BURNERS for even heat distribution in any capacity.

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BENCH TYPE OVEN FURNACES for heat treating and pre-heating. Temperatures to 2000° F.

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2 per cent to the amount of interest the government has to pay for the money it borrows, plus one-fifth of 1 per cent to cover administration of the loan program. He also asked for a slight reduction in loan funds for the new fiscal year.

Some government loans are now running at 5 per cent, which means the government pays this amount to get the money it in turn lends to the co-ops at a legal limit of 2 per cent interest.

In addition, the President says "it is vital" for the future that a mutual banking system be established to provide loans for REA borrowers. Under this proposal, the government would provide initial capital to set up special banks to in turn lend to the co-ops. In most such programs, the banks eventually repay the government investment and become self-sufficient.

If such a bank is set up, the President favors retaining a sharply curtailed REA program to lend money to co-ops (at going interest rates) only "to meet special circumstances."

The President is asking the REA cooperatives to work with the Agriculture Department to develop a plan for such a co-op bank system.

But they're not likely to do so with any enthusiasm unless the threat of congressional action appears to be severe. And it doesn't as of now. Farm groups, farm state congressmen, and others are holding the whip hand in an election year. They claim that raising the interest rate would drive many co-ops out of business, prevent new co-ops from forming, and thus deprive farmers of the benefits of electric power.

President Eisenhower's reminders to Congress that 96 per cent of all farms now have electricity; more than half of the total power sales by REA co-ops are for industrial, recreational, and other non-farm uses; and 80 per cent of the new customers are not farmers, is likely to fall on deaf ears.

In his budget for the fiscal year beginning July 1, the President proposes to cut REA loan funds by about \$25 million under the current year to \$220 million. This would include \$110 million in new money, plus \$108 million which will be carried over from this year.

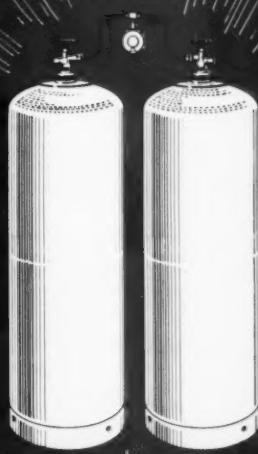
Since 1935, the government has loaned \$4.1 billion to REA co-ops. Of this, a little under \$1 billion has so far been repaid, and interest payments have totaled almost \$500 million.

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Formulated to meet the special needs of the LPG industry. Uniform quality at the lowest possible price consistent with the high standard of this superior paint. See catalog for description of three types available. Comes in 1 gal. cans, 5 gal. pails and 55 gal. drums.

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Available in 1 or 5-gallon cans
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Lightweight (1/4 HP—33 lbs.) portable spray outfit with 115-volt, 60-cycle single phase motor compressor. Two models. Complete with air hose and spray gun.

PRESSURE TANK PAINT UNITS FOR BULK PLANTS

For use with separate compressor units. Consists of tank, spray gun, air hose, paint hose and air valve. Two- and 5-gallon sizes.



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CALENDAR

All associations
are invited to send
in the dates of their
forthcoming meetings

1960

- March 6-8—Indiana LPGA Convention and Trade Show—Claypool Hotel, Indianapolis, Ind.
- March 10-11—Kentucky LPGA Annual Spring Board of Director's Meeting—Kentucky Hotel, Louisville, Ky.
- March 20-22—Ohio, Kentucky, Indiana Tri-state Convention and Trade Show—Sheraton Gibson Hotel, Cincinnati, Ohio.
- March 21-22—Montana Service Schools Great Falls, Mont. and March 24-25—Miles City, Mont.
- March 21-23—Minnesota LPG Short Course—University of Minnesota, St. Paul, Minn.
- March 28-30—Southeast District LPGA Convention and Trade Show—Atlanta Biltmore Hotel, Atlanta, Ga.
- March 28-29—Iowa LPGA Convention—Kirkwood Hotel, Des Moines, Iowa.
- March 29-30—New York LPGA Convention—Concord Hotel, Kiamesha Lake, N. Y.
- April 5—Wisconsin LPGA Convention—Whiting Hotel, Stevens Point, Wisc.
- April 7-8—Western Canada LPGA Annual Meeting—Calgary.
- April 10-11—15th Annual Kansas LPGA Convention and Business Meeting—Allis Hotel, Wichita, Kans.
- April 11-12—North and South Dakota Joint Convention—Eagles Club, Bismarck, N. D.
- April 12-14—Tenth Midwest L. P. Gas Service School—Iowa State College, Ames, Iowa.
- April 22-23—Oklahoma LPGA Spring Meeting—Lake Texoma Lodge, Lake Texoma, Okla.
- April 24-25—Association of Nebraska LPG Dealers Annual Convention—Castle Hotel, Omaha, Neb.
- April 24-26—Mississippi LP-Gas Dealers Association—Edgewater Gulf Hotel, Edgewater Park, Miss.
- April 25-28—Florida LPGA Management Conference, University of Florida, Gainesville, Fla.
- May 1-4—National LPGA Convention and Trade Show—Conrad Hilton Hotel, Chicago.
- May 9-11—National Tank Truck Carriers Inc. Annual Convention and Tank Truck Equipment Show—Hotel Mark Hopkins, San Francisco, Calif.
- May 16-18—Central States L. P. Gas Carburetion School—Kansas State University, Manhattan, Kans.
- May 16-20—NFPA Annual Meeting—Hotel Queen Elizabeth, Montreal, Que.
- May 22-25—Industrial Heating Equipment Association Inc. Annual Convention—The Homestead, Hot Springs, Va.
- May 29-31—Mid-South District LPGA Convention and Trade Show—Peabody Hotel, Memphis, Tenn. (Arkansas and Tennessee will hold their annual state meetings during this convention.)
- June 2-3—Institute of Appliance Manufacturers Convention—Netherland Hilton Hotel, Cincinnati, Ohio.
- June 5-10—Florida LPGA Technical Conference—University of Florida, Gainesville, Fla.
- June 6-9—Iowa Midwest L. P. Gas Engine School—Iowa State College, Ames, Iowa.
- June 9-11—Western Liquid Gas Association Convention and Trade Show—Statler Hotel, Los Angeles, Calif.
- June 13-15—American Society of Heating, Refrigerating & Air Conditioning Engineers Annual Meeting—Vancouver, B. C., Canada.
- June 26-28—Minnesota LPGA Summer Convention—Grand View Resort near Brainerd, Minn.
- June 27-28—Montana-Wyoming Convention—Jackson Hole, Wyo.
- July 17-19—Colorado Convention—Boulder, Colo.
- July 24-26—Alabama LPGA Convention—Grand Hotel, Point Clear, Ala.
- August 7-9—New Mexico Convention and Trade Show—Albuquerque, N. M.
- August 14-16—Kentucky LPGA Convention—Kentucky Hotel, Louisville, Ky.
- August 21-23—Idaho, Nevada, Utah Tri-state Convention and Trade Show—Shore Lodge, McCall, Idaho.
- September 11-13—Florida LPGA Annual Convention—Hotel Robert Meyer, Jacksonville, Fla.
- October 17-21—48th Annual National Safety Congress. Sessions on industrial safety scheduled for the Conrad-Hilton, Pick-Congress, Sheraton Towers, Morrison and LaSalle hotels; traffic safety, Pick-Congress; commercial vehicle and transit safety, LaSalle; farm safety, Palmer House; and school and college safety, Hamilton, Chicago, Ill.

NEWS BRIEFS

Chicago Transit Authority's fleets of modern equipment were increased in 1959 by delivery of 96 all-metal rapid transit cars and 131 odorless L. P. gas motor buses costing a total of \$7,794,658. V. E. Gunlock, chairman of the company's board said. Today's surface fleet of 3274 passenger vehicles consists of 1550 operating on L. P. gas.

During 1959, home laundry appliance manufacturers shipped 9 per cent more appliances than in 1958, for the third best year in the history of the industry, according to AHLMA.

General Controls Co. has introduced "Kupi-Pac," a combination variety pack, shipping carton and counter display for gas appliance thermocouples. There are ten packages of



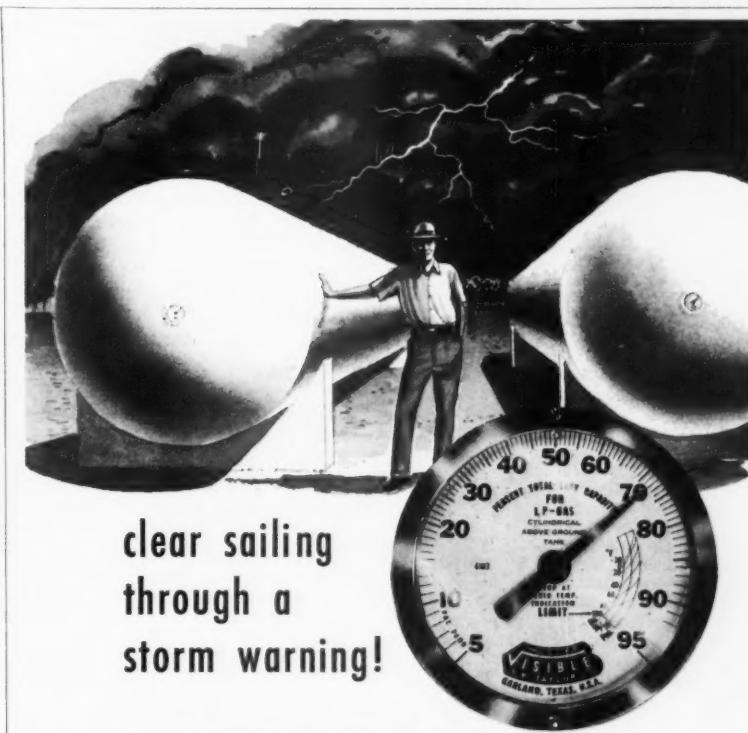
Top Thermogas salesmen Dan Vosen (front row), Bernard Johnson (second row) and wives are greeted at the Des Moines Airport by Charles Russell, as they leave for the Sugar Bowl in New Orleans. The \$450 trip was first prize in a recent Thermogas-Johnson Gas Appliance Co. Pigskin Parade contest. The two men sold more L. P. gas stock tank heaters, pig blankets and other Johnson L. P. gas farm appliances than any other member of their team. Thirty-three Thermogas plants competed in the contest.

assorted thermocouples in each carton, as well as a variety of adaptors and snap rings which permit the 'couples to be used with any pilot burner. This new packaging technique enables servicemen to carry a complete assortment of these items in their kits at all times.

Commercial Transport Magazine of South Africa, states that LPG has begun to appear on the country's scene as a fuel for over-the-road vehicles. A Standard Oil Co. tanker is the first of its type to be put into service.

A forum devoted to unconventional methods of generating power, including the fuel cell, will be one of the features of the 22nd annual American Power Conference. The Conference will be held March 29-31 at the Sherman Hotel in Chicago.

Factors influencing dust and lint collection on the underside of burner ports, together with methods for reducing the tendency through burner design, are discussed in a forthcoming publication by the AGA Laboratories. Research Bulletin No. 79, "Minimizing Lint Stoppage of Atmospheric Gas



**clear sailing
through a
storm warning!**

When a predicted storm casts its ominous threat over the country-side, the LPG distributor is one person who knows he and his customers will have smooth sailing through the worst weather. Because one glance at his Visible Master gauge assures him that sufficient fuel levels are on hand to supply all his customers' needs. Their well-being in any kind of weather is mirrored in its dependable face. This man and the hundreds of homemakers, farmers, truckers and all others who depend on him know they can place their trust in Visible, because Visible means years of accurate, dependable performance . . . performance that has made the Taylor Visible gauge the largest selling LPG and NH₃ float gauge in the world . . . the "Standard of the Industry."

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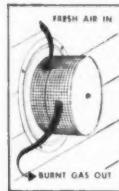
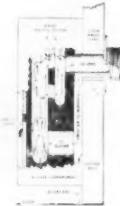


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Sells like magic, because it heats like magic. That's Vent-O-Magic the dramatically different wall heater. Slashes installation time—requires no ductwork or chimney. Completely sealed exchanger; burnt gases cannot enter room.

True packaged heating. No extras to buy. Completely assembled by skilled factory technicians. Minimum service assures highest profits.

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- Name: _____
- Company: _____
- Street: _____
- City: _____ State: _____

Burner Ports" will be available in April at \$2.50 each from the American Gas Association, 1032 E. 62nd St., Cleveland 3, Ohio.

Manufacturers of gas-fired automatic storage water heaters shipped 10.6 per cent more units in 1959 than they did in the previous year and 195,100 more than their all-time high recorded in 1956, GAMA reports. The 1959 total was 2,957,200, compared to 2,673,400 and 2,762,100 reported in 1958 and 1956, respectively.

DEALERS

Petrolane Gas Service announces that preliminary results for 1959 indicate that sales of L. P. gas were in excess of \$16 million up from approximately \$11 million in 1958. Net earnings climbed to approximately \$1.2 million or \$2.30 per share on the 517,500 shares outstanding. This compares to \$878,000 or \$1.70 per share reported on the same number of shares in 1958.

Safe Driving Awards totaling \$20,309 have been given to 995 drivers of Suburban Propane Gas Corp., Whippoorwill, N. J., and its subsidiaries. Each man also received a pin embossed with the number of consecutive years that he has been recognized as a safe driver. Among the winners were two with a record of 19 years and 184 others with 10 or more years of careful driving.

On April 1 Mid-State Bottle Gas Co. and New Haven Bottle Gas Co., New Haven, Ky., will celebrate their 11th anniversary with the formal opening of a new gas appliance and demonstration showroom. This will also kick off a powerful mid-Kentucky advertising and promotional campaign aimed at selling the region on the two companies, their products and the entire L. P. gas industry. Paul Thompson is president of the firms.

Rocky Mountain Natural Gas Co., Denver, Colo., has purchased Domestic Propane Co., Delta, Colo., Ernest C. Porter, president of the former, has announced. Henry C. Showalter, former principal owner of Domestic, will remain as manager. Domestic serves 1700 propane gas customers in Delta and nearby communities. The firm has its own appliance store, office and warehouse in a building at Delta, and its own propane transport truck.

The Parlett Gas Co., Waldorf, Md., has purchased the assets of Independent Gas Co., Baltimore, according to C. J. McAllister, vice president and general manager of Parlett. W. H. Vester, president of Independent has been retained by Parlett to assist in industry relations.

SUPPLIERS

Long-term leasing of production equipment by gas industry firms during 1959 spurred ahead, reaching a total of \$3.6 million worth of equipment on lease, a gain of 52 per cent over 1958, according to Nationwide Leasing Co., Chicago. A complete analysis of equipment leasing has been developed by the Foundation for Management Research, entitled: "The Pros and Cons of Leasing." Single free copies may be obtained by writing to the Foundation at 121 West Adams St., Chicago 3, Ill.

Representatives of Skelly Oil Co. announce that the company's \$3 million gas treatment plant, now under construction east of Loco Hills, N. M., will be in operation by May 15. The plant itself will extract propane, butane and natural gasoline. The plant and equipment will occupy approximately 10 acres and will employ 20 men when it goes into operation.



Spanish manufacturing executives hear an explanation of United States range-making from Wendell C. Davis (right), president of Cribben & Sexton Co., Chicago. Listening to Davis are (left to right): Jose Martinez Rodriguez, Riveira, Spain, diesel engine manufacturer; W. S. Gauthier, Cribben & Sexton manufacturing vice president; Juan M. Yanes, Spanish Embassy commercial office; and Pedro Corbera Trepap of the Corbera gas range plant, Barcelona, Spain.

Winners of five 1960 Cadillac sedans have been announced in the sales contest sponsored by the Siegler Heater Co., Centralia, Ill., a division of the Siegler Corp. The winners, one from each of the company's five sales districts, are: L. A. Miller, Salmon Butane Gas Co., Summerville, Ga.; Heinz Karney, Northern Home Furnishings Co. Inc. of Chicago; Russ Davis, Minnesota Valley Natural Gas Co., St. Peter; Gale Keihl, Keihl Hardware, Nashville, Mich.; and Arthur Prince, Prince Bros., Tabor City, N. C.

United Petroleum Gas Co., a division of Diversa Inc. has recently acquired three L. P. gas companies. They are: Liquigas Inc., Corsicana, Texas, which has 13 bulk plants and an underground reservoir for L. P. gas; White River Propane Gas Co., Batesville, Ark., with five bulk plants; and Crosby Gas Co., Avon, S. D., with two bulk plants. The acquisitions give United a total of 45 bulk plants in six states.

The name of Pennsylvania Range Boiler Co. Inc., Philadelphia, was recently changed to Pennsylvania-Bradford Appliance Corp. The decision to change the name, as announced by Milton G. Peck, chairman of the board, was made primarily to reflect the change in the company's products.

Neptune Meter Co.'s Superior Meter Division has acquired additional space for the manufacture of "Superior" gas meters at its Brooklyn factory. Streamlining of the plant's operations and increased manufacturing activity made it necessary to almost double the amount of factory space.

Texaco Inc. has announced plans to triple present capacity of its 100,000-bbl butane storage well in Sour Lake Field, La. With the completion of the program, total capacity of Texaco's underground butane storage at Sour Lake Field will amount to 800,000 bbl. This includes one other 300,000 bbl and two additional 100,000 bbl cavities.

International Harvester Co., Fort Wayne, Ind., will construct a new motor truck parts depot on a 30-acre site directly south of the company's Fort Wayne motor truck engineering departments and laboratories. The building will occupy a total area of 625,000 sq ft, or about 15 acres under roof, and will be the company's largest parts distribution facility. Completion and occupancy is scheduled for Nov. 1, 1960.

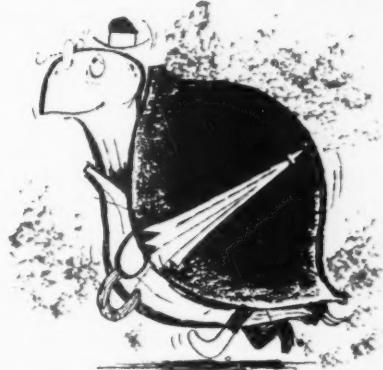
Whirlpool Corp. of Benton Harbor-St. Joseph, Mich., has renewed its contract to co-sponsor the 1960 Mrs. America Homemaking Contest. The 22nd annual National Finals will be held in Fort Lauderdale, Fla., June 2-14. A \$30,000 kitchen featuring all-gas appliances will be presented to the new Mrs. America.

General Controls Co., Glendale, Calif., has announced the establishment of a San Diego area resident office. Supervised by Don Wolf, new field representative for San Diego, the office provides service for original

equipment manufacturers' sales outlets. It will also handle all contacts with the heating and air conditioning wholesalers and dealers in the San Diego Bay area. The new branch is located at 4750 Seminole Drive.

A single barrel 2600 wc propane delivery truck has been delivered to Michiana Gas Service of Michigan City, Ind., by Master Tank & Welding Co., Dallas, Texas. The unit features 3 in. plumbing and can pump in excess of 50 gal. a minute, creating considerable time-savings at each delivery stop.

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For further information on any items in this section use the convenient Univac Readers' Service postcards on pages 91, 92.

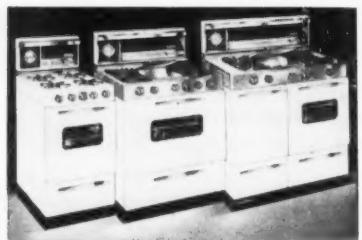
New Products and Free Literature



Gas detector provides all purpose indication-alarm unit

Circle 1 on Readers' Service Card

A probe type gas detector (GEC 760) is designed to give indication and alarm when gas concentrations reach unsafe levels. Unit can be operated as portable instrument with handy probe type element or as fixed indicator/alarm with up to 100 ft of cable to detector element. It weighs only 12 lb and is 5 x 7 x 8 in. Houston Instrument Corp.



New backguard design is highlight of range line

Circle 2 on Readers' Service Card

A "Touch of Elegance," backguard design is featured on the new line of "Featuramic" gas ranges (GEC 240). Deluxe models have a chrome filigree design inlaid on a charcoal gray background. Brown Stove Works Inc.

100-watt two-way radio unit added to transistorized line

Circle 3 on Readers' Service Card

The Motrac line of transistorized two-way radios (GEC 140) is being expanded with the introduction of a 100-watt unit to operate in the low band (25-54 mc) frequencies. Lower operating costs are made possible through the units' low power consumption characteristics. Even the newest 100-watt unit will draw no more than .5 amps plus intermittent crystal heater drain while on standby. Motorola Inc., Communications & Industrial Electronics Division.



Built-in refrigerator designed for travel trailers and campers

Circle 5 on Readers' Service Card

A brand new built-in gas refrigerator (GEC 690), designated Model A-160-A, has been especially designed for the small travel trailer and campers. It incorporates many new features, including the Norcozip automatic lighter, an entirely new burner, door storage compartments and sliding shelves. Manufactured by Astral in cooperation with Norco Inc.



Vapor weed burner actually floats in operator's hand

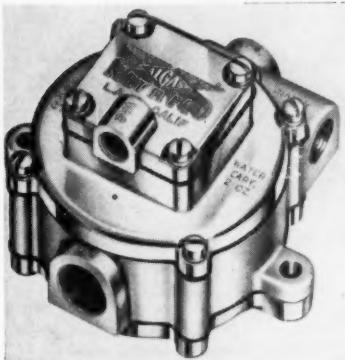
Circle 4 on Readers' Service Card

The SE-270-C Super "S" L. P. gas vapor burner (GEC 001) develops a wide, high velocity 2500 deg. flame which fills the average irrigation ditch with weed-killing flame. It weighs approximately 3 1/2 lb and actually floats in the operator's hands when the trigger valve is depressed. Uses approximately 20 gal. of L. P. gas per hour at 100 lb pressure. Manchester Tank & Equipment Co.

Pipe protection tape can be applied in below zero weather

Circle 6 on Readers' Service Card

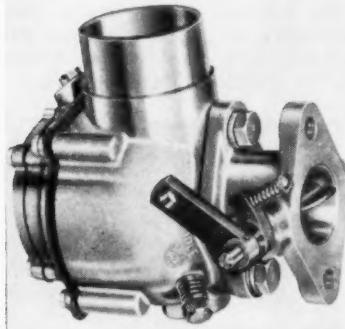
A polyvinyl chloride pressure-sensitive pipe protection tape (GEC 130) can be applied at temperatures as low as -5 deg. F. It is designed for conformability over a broad temperature range, with optimum properties for pipe corrosion protection. High insulation resistance and electric strength remain stable in the presence of water and guard against damage from nearby lightning strikes, grounded high voltage cables and similar faults. Minnesota Mining & Manufacturing Co.



Positive pressure fuel system requires only two adjustments

Circle 7 on Readers' Service Card

A new Met-R-Flo fuel system (GEC 100), designed specifically for forklifts, farm tractors and industrial engines, consists of a carburetor and converter. Idle and



power are the only adjustments in the entire fuel system. Forklift model carburetors have a built-in vacuum switch. The small 4-in. converter may be mounted in any position to facilitate installation. The pressure system eliminates the need for a primer or choke mechanism for starting. American Liquid Gas Corp.

Device adapts valves for liquid withdrawal

Circle 8 on Readers' Service Card

A new type of liquid withdrawal valve (GEC 820) enables bulk truck or farm tractor operators to withdraw L. P. gas through a valve that is not normally suitable for liquid withdrawal. The M450 Liquid Evacuating Adaptor can be attached to regular filling valves, unit heads, or vapor return valves to allow reverse flow. This is made possible by an adjustable internal stem and lever-cam arrangement, which opens the upper back check to permit the flow. Fisher Governor Co.

Two-way radio uses transistors and printed circuits

Circle 9 on Readers' Service Card

A transistorized, two-way radio for cars, trucks, and other vehicular applications uses transistors and printed circuits extensively. The power supply is completely transistorized and there are only two tubes in the receiver. Bendix Radio Division, Bendix Aviation Corp.



Double oven-view doors distinguish range series

Circle 10 on Readers' Service Card

Double open-view doors to oven, broiler, and storage compartments distinguish the 8100 series of free standing ranges (GEC 240). An illuminated back panel lights the cook top area. All models feature the one-piece lift top for easy care. Two models are available in three colors. O'Keefe & Merritt Co.



Weedburners are equipped with blowout-proof pilots

Circle 11 on Readers' Service Card

The "Farm Boy" weedburner (GEC 001) is a two wheel cart with a 10 gal. propane tank and a No. 3 Blue Jet vapor burner with 15 ft of hose. The burners are equipped with turbulator-type pilot lights, which are the latest developments in blowout-proof pilots. All models burn full tank pressure. Northwest Fabricators Inc.



Gas refrigerator banishes frost problems

Circle 12 on Readers' Service Card

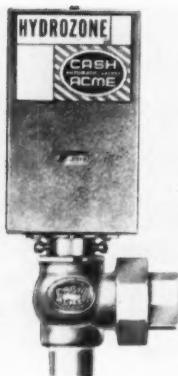
Complete family food storage is provided in the 13 cu ft of the new 1960 "No Frost" gas refrigerator-freezer (GEC 690). The top-of-the-line model, like two less expensive units, completely banishes frost problems. In addition it features the automatic ice cube maker, the Jet Cold shelf for quick chilling of desserts and beverages, meat chest, portable egg trays, high twin crispers, and "million magnet" door gasket sealing and architectural styling. Whirlpool Corp.



Safety lamp sealed in heavy vulcanized synthetic rubber

Circle 13 on Readers' Service Card

An explosion-resistant safety lamp which cuts the price of this type of tool to a small fraction of former costs has been announced by Burton. The "Jetlite" features ultra-high-intensity illumination, supplied by a 65,000 candle-power aircraft landing light. Minimum lamp-life is 100 hours. The unit, including cord and transformer, is completely sealed in heavy, vulcanized synthetic rubber. This safeguards against sparks and shorts when the lamp (GEC-320) is used in highly volatile situations. Burton Manufacturing Co.



**Motorized zone control valve
is for use on hydronic systems**
←Circle 14 on Readers' Service Card

A motorized zone control valve (GEC 190) is designed for use on hydronic heating and cooling systems and for steam up to 10 psi. It features four body types for varying job conditions, has a visual valve stem indicator, and is easily set for manual operation in case of power failure. The 100 per cent shut-off feature allows it to be used on low pressure steam systems. A. W. Cash Valve Manufacturing.



**"Kamp-Kitch'n" provides
"everything but the sink"**

←Circle 15 on Readers' Service Card

The "Kamp-Kitch'n" (GEC 230) contains a two-burner L. P. gas stove, a table or working area, a clip panel for holding cooking hardware, and six storage spaces. It comes equipped with complete service for four—dinner plates, pans, drinking mugs, and stainless steel knives, forks and spoons. Weighs 16 lb. Nuttle of Columbus Inc.

**Behind every LP-gas installation there's a
HUMPHREY
GAS LAMP
PROSPECT!**

...SO STOP—AND SELL—
FOR EXTRA PROFITS!

WHEREVER YOU SEE—OR DELIVER
—a bottle of LP-gas, there's a
prospect for Humphrey Opalite Gas Lamps! Have your
drivers show* these prospects the heat-resistant glass
globes, long-lived "Beret" mantles and choice of anodized
copper, brass or aluminum trim finishes.

IF THE USER HAS A COTTAGE, cabin or travel trailer, sell him this bright, cozy light for full-time or supplementary use. And tell commercial bottle gas customers how stand-by lamps help in emergencies, when other power fails.

YOUR DRIVERS AND SALES STAFF will find extra profits in selling Humphrey Lamps. And each lamp they sell boosts bottle gas consumption too! It's a double profit for you—so display and sell top-quality Humphrey Gas Lamps!

WRITE TODAY FOR FREE LITERATURE!

*We'll send sample handout stuffer your drivers can use.)

Ask about our New Outdoor Lamps too!



GENERAL GAS LIGHT COMPANY

Makers of Humphrey Opalite Lamps

N. PARK STREET • KALAMAZOO, MICHIGAN



In Copper, Brass
or Aluminum
finishes.



New oven-proof
globe lasts longer
—half-frosted to
light best.



Exclusive shock-
resistant "Beret"
mantle lasts longer.



**Refrigerator uses L. P. gas or
plugs into cigarette lighter**

←Circle 16 on Readers' Service Card

A portable refrigerator (GEC 690) which can be powered from low voltage electrical outlets or which can be instantly converted to operate from a small container of L. P. gas has been developed. Designed to operate on low voltage household electric current, the Escort can be immediately changed over for plug-in to cigarette lighter or connection to battery when used in car, trailer or motorboat. An absorption type refrigerator, it has no moving parts, no motor, and no thermostat. Selectra Industries, Inc.

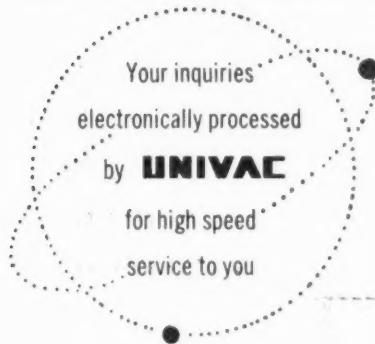


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FREE LITERATURE

Cylinder and manifold folder

Circle 17 on Readers' Service Card

An 8-page folder describes a complete line of cylinders and manifolds (GEC 260). Included are standard domestic service cylinders and special duty cylinders ranging in capacity from 1.8 to 100 lb. Also featured is the manifold that eliminates the need for tanks and large cylinders. In addition to illustrations the folder contains information on design features, capacity and dimensions. Linde Co., Division of Union Carbide Co.

Fork trucks' safety features

Circle 18 on Readers' Service Card

A 4-page folder (Bulletin No. SS-1726), explaining special safety features incorporated in nine models of gas and L. P. gas powered fork trucks (GEC 530) used in hazardous operations, is now available. The folder covers special protective devices installed on battery, generator, muffler, air filter and electrical distribution system. Industrial Truck Division, Clark Equipment Co.

Burner specification sheet

Circle 19 on Readers' Service Card

A specification sheet provides size and operating specifications on the "Gun Heat," "Contractor," "Tele-Tube," and "Spread Heat" series of gas burners (GEC 080). Actual photographs of the different flame patterns produced by each burner are included. Barber Manufacturing Co.

Fire equipment literature

Circle 20 on Readers' Service Card

A 20-page catalog displays Ansul's 1960 line of fire equipment. The complete line, including hand portable extinguishers, stationary fire equipment, piped systems and large capacity mobile equipment such as fire jeeps and trucks is listed. Ansul Chemical Co.

Accident prevention guide

Circle 21 on Readers' Service Card

"Who gets hurt in industrial accidents?" is a question asked—and answered—by a new pamphlet (GEC 710). It uses a humorous approach, multicolored cartoons and concise text to discuss on-the-job injuries. National Safety Council.

Industrial heating manual

Circle 22 on Readers' Service Card

A 64-page text incorporates all data needed to design industrial heating jobs using direct fired heaters with heat exchangers (GEC 410). The text covers definitions of terms, complete explanation of direct fired heaters, heat loss calculations, air distribution (nozzle and duct), single and multiple installations, door heating, process heating, make-up air, fuel piping design and consumption, and controls. Also included in the catalog are conversion tables for pressure, temperature, weights and measures. Lennox Industries Inc.

Transistorized radio bulletin

Circle 23 on Readers' Service Card

A transistorized progress line two-way radio equipment bulletin is available from G-E. It describes how small size (8½-in. wide, 12-in. long and 4-in. high) makes possible a wide variety of positions in which the equipment may be mounted in cars and trucks. Charts are included showing how the car's battery can be saved. General Electric Communications Products Department.

The INSIDE STORY of why...

SUBURBAN NOVENT and DYNAVENT - GAS HEATERS - are the BIGGEST SELLING self-vented heaters -

INSTALL IN WINDOW OR WALL (like an air conditioner)

- Need NO flue or chimney
- Burn NO room air
- Have an exclusive automatic built-in forced warm-air system
- Will heat a room quickly and evenly from floor to ceiling. Up 20° in ONLY 5 minutes
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Available in 20,000—35,000—45,000 BTU Models

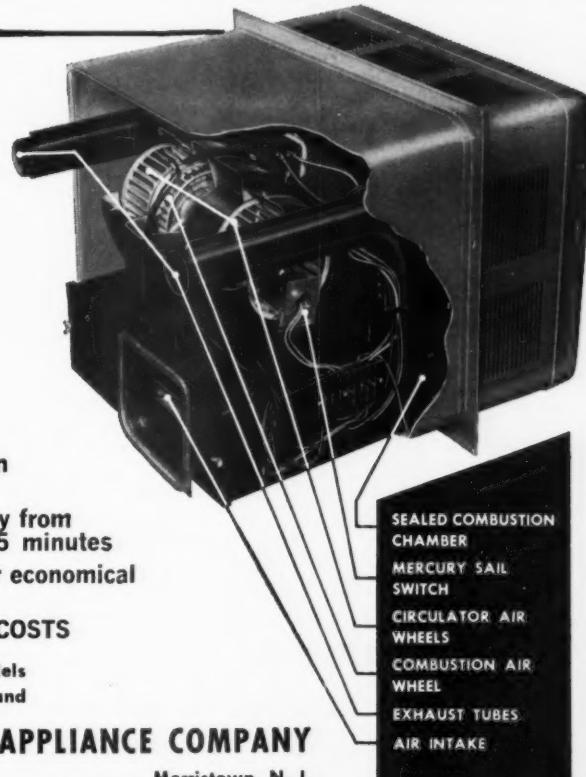
Approved by AGA, CGA, CSA, Leading Utilities and
LP-Gas Marketers.

Send for complete information

SUBURBAN APPLIANCE COMPANY

Dept. BP-360

Morristown, N. J.



EVERYONE'S A CUSTOMER
FOR A DEARBORN



"Boyl Just look at those radiants!"

Of course . . . everyone is a customer for a Dearborn gas area heater. One of the big reasons is the Glo-Brite Radiants, which is referred to by our friend in the row boat. The widely acclaimed quality of Dearborn heaters is built to last, offering years of trouble-free comfort and warmth for your customers. Smart and stylish design coupled with the industry's most advanced engineering make Dearborn the best line of heaters for you to sell!



GLO-BRITE RADIANTS



Glowing cherry red from top to bottom, these radiants put a carpet of infrared rays across the floor, guaranteeing positive floor warmth! Standard on all Dearborn Regency models.

The Dearborn Regency is the world's finest gas area heater. Lower, longer and loaded with sell-on-sight appeal!

Dearborn®

Get details of Dearborn's clean-cut selling policy from any of these regional sales offices: Atlanta, Chicago, Dallas, Los Angeles, San Francisco.

1960 Dearborn Store Co., Dallas



ASSOCIATIONS

Safety emphasized this year in

Kansas' continuing educational program

DURING World War II, the government awarded outstanding performance to its government-contract-holding industrial firms and "E" for excellence. If the LPG industry were to award a latter-day "E", for education, one of the prime candidates would certainly be the Kansas LPGA. This group not only lays claim to two educational firsts, but also has a continuing educational program that adds up to 48 regional meetings per year!

The Kansas group has always been active in the educational field with outstanding programs. Kansas lays claim to conducting the first L. P. Gas Management Conference and the first L. P. Gas Carburetion School held in the United States. The carburetion school is still in operation and the 1960 edition of the program will be held on the campus of the Kansas State University in Manhattan, on May 16-18.

In addition to the school-type program, the association conducts a series of six district meetings per year. Each series consists of eight meetings running from September through February. The over-all topic of the series just completed was "safety."

The September meeting featured a discussion on the use of high- and low-pressure regulators, pipe sizing, pressure problems, plus safety hints on proper installation.

In October a sound film entitled "Respect" taught the safe handling and use of L. P. gas. A flannel board presentation on "Fire—Friend or Foe" was also presented.

Actual practice on live water heater controls, oven and top burner controls highlighted the November series.

In December "Safe Driving Awards" were presented by officers of the Kansas Highway Patrol. A featured sound strip film, "Death on the Highway," was shown in conjunction with the awards presentation.

In January a "Safety Film Presentation" included the California

fire film, giving excellent information on L. P. gas fire control; a plant operation film showing the do's-and-don'ts and the right-and-wrongs of operating an L. P. gas plant; and an Operation "Q" color sound film on atomic test in White Sands, N. M.

A live demonstration on type "B" gas vents provided information on added safety and economy in February.

Two hundred and thirty-four safe driving (accident-free) awards were presented to drivers of 60 member companies during the December meeting. For the purpose of this award a chargeable accident is defined as one where the company or its insurance agency was required to pay damages.

First year drivers received a certificate of award, plus an L. P. gas blue flame lapel pin. All other drivers receive a certificate of award, plus a colorful award emblem showing the actual number of accident-free years. The emblem is designed to be worn on the uniform shirt or on the sleeve of the jacket.

William F. Baker, Darlingas Co., Pratt, headed the list of safe drivers with 25 accident-free years. V. A. Givens, Farmers Cooperative Elevator, Mt. Hope, had 22 years and W. A. Cone, Cone Gas Co., Meade, sported 17 years.

In addition to its schools and Safe Driving Awards the Kansas LPGA maintains a watchful eye on all legislation affecting the L. P. gas industry in Kansas. Recently this watchfulness paid off with the passage, by the state legislature, of the Liquefied Petroleum Motor Fuel Tax Law. This legislation divorced the L. P. gas industry from the diesel industry and removed L. P. gas from the special fuel designation. On two occasions in the past when the state legislature had increased the tax on diesel fuel, the L. P. gas industry was inadvertently taxed because of the special fuel designation.

A program of accident and sick-

ness disability insurance, written by Washington National Insurance Co. is another KLPGA-sponsored benefit. At present, a study is being conducted on the possibility of sponsoring a medical and hospitalization program.

As stated in its constitution and by-laws, the Kansas L. P. Gas Association's purposes are:

- To promote and develop the L. P. gas industry and to coordinate its activities to the end that it may serve to the fullest possible extent the best interest of the public.

- To increase the effectiveness of gas service for light, heat and power for the mutual benefit of the producers, distributors, and users of L. P. gas.

- To advance to the highest efficiency the methods of manufacture, distribution, utilization, sales and accounting employed in the L. P. gas industry, and to collect, coordinate and disseminate ideas and information for this purpose.

- To promote closer relation and cordial cooperation in all branches of the L. P. gas industry.

- To advance knowledge and learning in the sciences, and to stimulate invention and research, especially as applied to the L. P. gas industry.

- To cooperate with other organizations in efforts toward economic advancement, accident prevention, conservation, standardization and other activities.

Valentine conducts sales clinic at Michigan convention

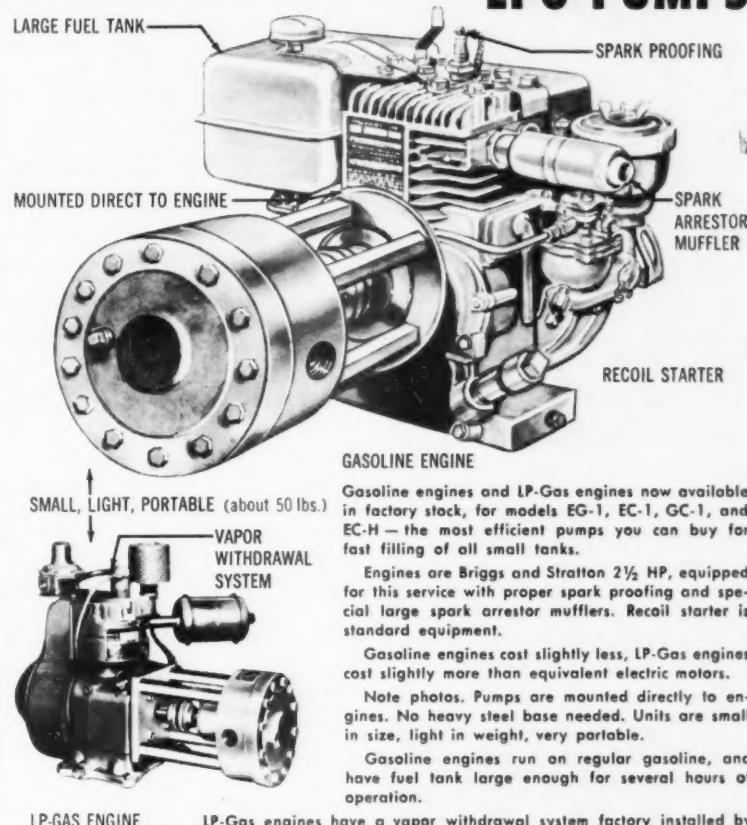
Howard Valentine, nationally recognized authority on gas sales promotion, conducted a sales clinic consisting of two meetings, at the recent 13th annual convention and trade show of the Michigan LPGA. Two hundred and twelve registered at the Pantlind Hotel in Grand Rapids for the three day meeting.

At the first meeting Valentine brought out that a sale was the most important part of any business. He discussed the potential of sales in the LPG industry. The meeting was open for questions and many dealers and operators presented their problems to him for analysis.

At the second meeting, Valen-



ENGINE DRIVEN LPG PUMPS



Gasoline engines and LP-Gas engines now available in factory stock, for models EG-1, EC-1, GC-1, and EC-H — the most efficient pumps you can buy for fast filling of all small tanks.

Engines are Briggs and Stratton 2 1/2 HP, equipped for this service with proper spark proofing and special large spark arrestor mufflers. Recoil starter is standard equipment.

Gasoline engines cost slightly less, LP-Gas engines cost slightly more than equivalent electric motors.

Note photos. Pumps are mounted directly to engines. No heavy steel base needed. Units are small in size, light in weight, very portable.

Gasoline engines run on regular gasoline, and have fuel tank large enough for several hours of operation.

LP-Gas engines have a vapor withdrawal system factory installed by Briggs and Stratton. The system is complete, includes 2 regulators, fuel filter, even a hose coupling. These engines run smoother than gasoline engines, can be hooked up to vapor space of any size LPG tank from a 20 lb. trailer bottle on up. Easier to start than gasoline engines.

Engines are individually tested with their own pumps at our factory. All adjustments are made. Put oil in crankcase and air cleaner and you are ready to go.

MURRAY 2-2293 and MURRAY 2-2691

W. S. SMITH
PRECISION PRODUCTS COMPANY

1135 Mission Street, South Pasadena, California

Southeastern Distributor: Pend-Johnston Inc. Warehouses in Mobile, Ala.; Jacksonville, Fla.; Dallas, Tex.

Western States Distributor: TeeCo Products, Inc., 3920 West Burbank Blvd., Burbank, California.

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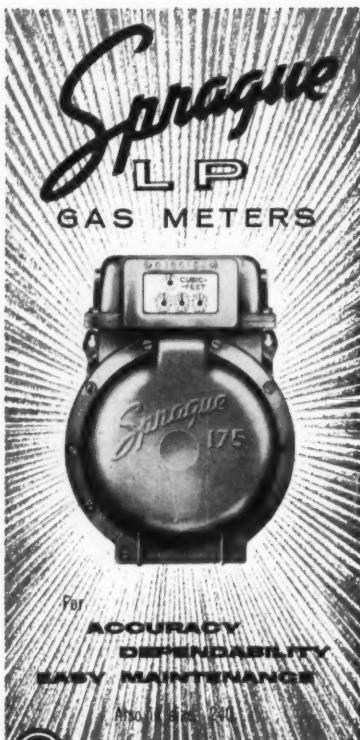
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Firm Zone

Street State

City Zone



For
ACCURACY
DURABILITY
EASY MAINTENANCE

AMERICAN STAINLESS STEEL

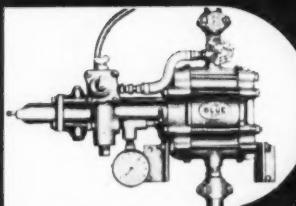


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35 SOUTH AVE. • BRIDGEPORT 1, CONN.

JOHN

BLUE



THE WORLD'S ONLY
VAPOR OPERATED
GAS TRANSFER PUMP

Power is extracted from a small quantity of high pressure gas. Uses only 1/30th or 1/10th as much gas as the bleeding method. Vapor loss extremely low. Transfers up to 24 gallons per minute in the field without danger.

Dependable Farm
Equipment Since 1886
JOHN BLUE CO., INC.
HUNTSVILLE, ALABAMA

tine's talk was an informal discussion of the many problems that a salesman has to contend with. So many dealers turned in analysis sheets that Valentine promised to report to each man by letter, rather than try to analyze all their problems in the short time allotted.

Charles Gunter, Fuelgas Co., Bay City, was elected president of the group for the ensuing year. Lou Marshall, Petgas Co., Petoskey, was elected vice president; and J. O. Gower, Gogas Co., Eureka, secretary-treasurer. Directors include Steve Sasfy, National Gas & Equipment Co., Trenton, and Conrad Voelker, Fuelgas Co. Inc., Houghton Lake.

ASSOCIATION NOTES

Three hundred and eighteen men attended the recent LPGA Training Course sponsored by the Michigan LPGA. According to L. C. Wright, chairman of the Michigan group's education committee, all the men have completed the six-week session on Book I in the course.

Leigh Atkinson, formerly assistant managing director for the National LP-Gas Council, has been appointed director of public relations of General Outdoor Advertising Co.

George C. Cusack, executive vice president, Pure Carbonic Co., a division of Air Reduction Co., Inc., was elected president of the Compressed Gas Association, Inc. at the concluding session of the association's 47th annual meeting. The meeting was held January 18-20 at the Waldorf-Astoria Hotel, New York. Other officers include D. M. Horner, Harrisburg Steel Co., 1st vice president; and Richard S. Passmore, Armour Industrial Chemicals Co., 2nd vice president. Franklin R. Fetherston who has served as secretary-treasurer of the association since 1927 was re-elected to that office.

A 10-day state wide safety meeting conducted by the U. S. Bureau of Mines is featured on the Oklahoma LPGA's agenda for 1960. According to Marshall V. Perry, president of Ark Valley Gas Co. Inc., Sand Springs, and newly elected president of the Oklahoma LPGA, other highlights include: A 2-day spring meeting at the Lake Texhoma Lodge, April 22-23; a 10-day state wide service school sponsored by Robertshaw-Fulton Controls Co.; and the annual convention to be held in Tulsa in October.



LEROY D. NUTTER, EARL C. HEFNER, JOHN F. DROGE, and JACKSON L. GARNER—new vice presidents, appointed to head each of the new district sales offices of the Siegler Corp.'s Holly-General Division, Pasadena, Calif. Nutter—Dallas office which covers Texas, Oklahoma, New Mexico, Louisiana, Arkansas, Mississippi, Alabama, western Tennessee, Nebraska, Kansas, Iowa and Missouri. Hefner—San Francisco office which encompasses northern California, Oregon, Washington, Idaho, Montana and northern Nevada. Droke—Los Angeles district, including southern California, southern Nevada, Colorado, Wyoming and Utah. Garner—San Diego County and Arizona.

LEE A. BRAND—vice president of Empire Stove Co., was elected to the board of directors of Morley Manufacturing Co., Mascoutah, Ill.

HARRY WEBER—from positions in city government to general manager Manchester Tank & Equipment Co., Lynwood, Calif.

CARL MILLER—from manager of the tank plant to plant manager of the new White Products Corp. plant, which will manufacture water heaters and water softeners, Meridian, Miss.

G. M. PENNOCK—manager of LPG truck sales, has also been appointed a vice president for Anchor Petroleum Co., Tulsa, Okla.

MRS. MARGARET GREGORY—recently associated with Locke Sales Co., to director of home services, Locke Stove Co., Kansas City, Mo.

R. F. HOMRICH—from sales manager, Hale's Forge Inc., East Lansing, Mich., to district sales manager in Michigan for Superflame, Queen Products Division, King-Seeley Corp., Albert Lea, Minn.

WILLIAM D. STEELE—from director of planning, Robertshaw-Fulton Controls Co., to a manufacturer's representative in Haddon Heights, N. J.

JAMES ZENNER—from head of warehousing, purchasing and field material control, Gulf Oil Corp., to manager of the Houston, Texas office, Grove Valve & Regulator Co., Oakland, Calif.

C. R. HAYES, DONALD T. BACK, and ROBERT DEAN—new representatives for the Peerless Manufacturing Division of Dover Corp. and its affiliate, Dura-Vent Corp. Hayes will cover the metropolitan St. Louis area; Back will travel the state of Ohio; and Dean will cover the state of Alabama, Columbus, Ga., and Pensacola, Fla.

J. P. HERRIN—from senior process engineer of the gas products department, Sinclair Oil & Gas Co., Tulsa, Okla., to chief engineer for Texas Petro Gas Co., Houston, Texas.

BOHDAN G. PASSTY—from development engineering positions in the heating and air conditioning industry to development engineer in charge of the Humphrey heating division, Arkla Air Conditioning Corp., Little Rock, Ark.

B. W. BYRNE—from sales representative in the Los Angeles office to sales representative in the St. Louis office, Warren Petroleum Corp.'s L. P. Gas Division, Tulsa, Okla.

WALTER ALLEN—is new executive vice president and director, Universal Gas Co., Inc., Luling, Texas.

EARL C. HEPNER—is new vice president in charge of the Siegler Corp.'s Holly-General Division new San Francisco district sales office.

W. L. PARCELL—elected executive vice president, Ridge Tool Co., Elyria, Ohio. R. D. FYE is the new sales manager and H. L. PALMER, advertising manager and assistant sales manager.

EDWARD L. FALLS JR.—from sales manager in the southern states, Motorola Communications & Electronics Inc., a wholly owned subsidiary of Motorola, to executive assistant to the general manager of the Communications Division. ROBERT N. SWIFT—formerly vice president and manager of the midwest sales area, replaces Falls. ROBERT F. DAVIS—formerly two-way radio sales manager for the midwest area, succeeds Swift.

MERRILL ELY—from heating engineer, Northwest Natural Gas Co., Portland, Ore., to sales engineer, Honolulu Gas Co.

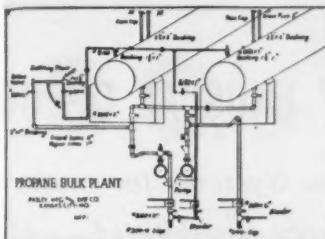
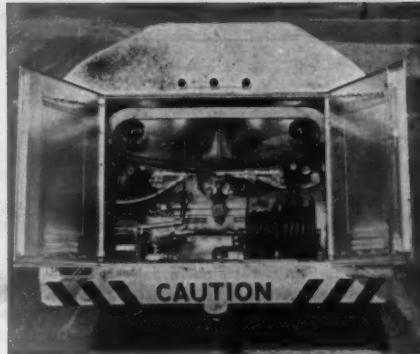
Your One Supplier with everything in L. P. gas and Anhydrous Ammonia Equipment



"The Loadmaster" LPG Truck Tank



PASLEY-DESIGNED Truck Tanks (see above and right) were first to feature all controls from one location. All operation is from one point—rear compartment.



BULK PLANTS Pasley LPG and Ammonia type installations—a turnkey job or engineering for your own installation. Write, wire or call.

Also a complete line of accessory equipment.

"Pastels By Pasley"

COLOR—The Modern Trend! Bring your LPG Equipment up to date. Available in the following colors . . . (write for information)

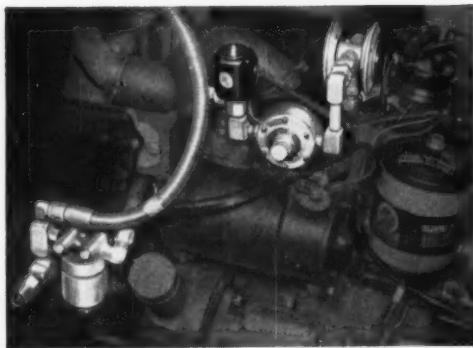
Blush Peach Smoky Grey
 Sunshine Yellow Seafoam Blue
 Mustard Lime Wedgewood Green
 Eureka Orchid Rose Beige
 Lake Blue Desert Rose



EVERYTHING IN LPG AND ANHYDROUS AMMONIA

The Pasley Mfg. & Dist. Co.

101 East 11th Street • Kansas City, Mo. • Tel. Victor 2-2369



The Best Known Is Best To Sell—Zenith is the oldest and most experienced manufacturer of industrial engine carburetors. This experience has been applied to LP-Gas Systems to deliver all the advantages of this fuel.



Clark, a foremost manufacturer of materials handling equipment, now offers a complete line, with capacities from 2,000 to 5,000 lbs. using Zenith LP-Gas Systems. Zenith Conversion Units are for all makes and types.

OUTLINE OF UNUSUAL OPPORTUNITY:

Zenith LP-Gas Conversion Systems for materials handling equipment offer exceptional profit possibilities . . . Here are Facts—*

1. Materials handling equipment powered by LP-Gas has increased tremendously.
 - a) Demand last year reached all-time peak—and is still growing.
2. Much of this demand is being met by converting present units to LP-Gas.
 - a) Conversion installations are quick, easy and profitable to make.
3. Profit is attractive 2 ways:
 - a) Zenith conversion units give trouble-free performance—keep operators satisfied.
 - b) Every unit provides additional fuel customers!

4. Zenith, leading manufacturer of industrial carburetion for many years, applies this experience to its LP-Gas conversion units.
 - a) Zenith conversion units are for all makes of lift trucks, tractors, and industrial engines.

Get the complete story. Write us now for information on conversion units for materials handling equipment. LP-Gas Sales Department, Zenith Carburetor Division, 696 Hart Avenue, Detroit 14, Michigan.

Zenith Carburetor Division





This "action-graduation" photo shows one of the recent classes getting the story on the dynamometer from its inventor, Lloyd Maxwell. Machine alongside the desk-mounted dynamometer is an oscilloscope. Each graduate receives one of these photos.

The A.B.C.'s of setting up carburetion schools

"How do you go about setting up a carburetion school?" That's usually one of the first questions dealers ask when they think about building their carburetion load. With nearly one dozen schools behind it, this company's experience should prove valuable.

EXCLUSIVE

WILLIAM T. HARPER • Eastern Editor

IF you live in Ohio, Kentucky, or West Virginia and are familiar with auto parts houses, chances are you've heard of Auto & Aero Supply Co. in Cincinnati and G. Earl Koch, its president and founder. If you are interested in LPG carburetion schools, chances are you could benefit from the experience provided by the 11 service schools Auto & Aero has staged to date.

Auto & Aero is a million-dollar

carburetion and brake parts business celebrating its 30th anniversary this year. It was in 1920 that Koch, fresh out of the Air Corps, decided that planes would catch the public fancy the way the auto already had. So he started in business, fully stocked with goggles, castor oil, wing struts, etc. But the aviation boom never materialized the way he visualized it. So, the name remained the same, but the



James E. Coch, Auto & Aero sales vice president and training director, shows one of the class presentations to G. Earl Koch, president and founder of the company.

accent was placed on the booming-more-than-ever auto.

Today, the firm has six salesmen who cover the southern half of Ohio, central and eastern Kentucky, and most of West Virginia.

Koch became interested in LPG in 1954. He now has five distribu-

tors for LPG equipment and plans to add more. These distributors must be automotive wholesalers with service facilities, at least one man on the road, and at least one man who has attended an Auto & Aero carburetion school. Neither Auto & Aero nor the distributor

Opposite—Here's the course outline. Note that there are 22 major topics and that many of these items are broken down in considerable — if not great — detail.

sells LPG, storage tanks, or dispensing equipment. The distributor appoints "stocking" and "non-stocking" dealers and constantly tries to build up his dealership list. The stocking dealer may be an LPG dealer, a fork-lift dealer, or a truck dealer. He makes installations (as does the distributor) but carries only fast-moving parts and kits. Buying parts only as he needs them, the non-stocking dealer has a subordinated position. The distributor is responsible for customer satisfaction, even though the stocking dealer may make the installation (after attending an Auto & Aero carburetion school). Emphasis is placed on making parts and service quickly available. Strategic location is one of the prime considerations in setting up distributors and dealers.

Why did this flourishing business get involved with LPG carburetion schools?

 <p>AUTO & AERO Supply Company, Inc. ESTABLISHED 1950</p> <p>4323 SPRING GROVE AVENUE • PHONE Liberty 2-4323 CINCINNATI 23, OHIO</p> <p>May 12, 1959</p> <p>LP-GAS SCHOOL SCHEDULE</p> <p>MAY 12, 1959</p> <p>9:00 a.m. to 9:15 a.m. Assembly</p> <p>9:15 a.m. to 9:30 a.m. The Nature of LP-Gas and Its Relation to Other Fuels</p> <p>9:30 a.m. to 10:45 a.m. Basic Engine Facts</p> <p>10:45 a.m. to 11:15 a.m. Clean up and travel to school</p> <p>11:15 a.m. to 11:45 a.m. Lunch</p> <p>11:45 a.m. to 12:15 p.m. Assembly</p> <p>12:15 p.m. to 12:45 p.m. Operation of LP-Gas as an Engine Fuel (a) Vapor Withdrawal System (b) Liquid Withdrawal System</p> <p>12:45 p.m. to 1:00 p.m. Comparison of LP-Gas System to the Gasoline System</p> <p>1:00 p.m. to 1:15 p.m. Cooling the Intake Manifold</p> <p>1:15 p.m. to 1:30 p.m. Compression Ratios</p> <p>1:30 p.m. to 2:00 p.m. Ignition Problems</p> <p>2:00 p.m. to 2:15 p.m. Rest Period (Coffee)</p> <p>2:15 p.m. to 2:30 p.m. High Pressure Hose & Fittings</p> <p>2:30 p.m. to 2:45 p.m. I.C.C. Cylinders, A.S.M.E. Tanks, Couplings, Fittings, Solenoids Vacuum Switch, etc.</p> <p>2:45 p.m. to 3:00 p.m. Safety Regulations</p> <p>3:00 p.m. to 3:15 p.m. Rest Period</p> <p>3:15 p.m. to 3:45 p.m. LPG Vaporizer and Regulator</p>	 <p>AUTO & AERO Supply Company, Inc. ESTABLISHED 1950</p> <p>4323 SPRING GROVE AVENUE • PHONE Liberty 2-4323 CINCINNATI 23, OHIO</p> <p>May 12, 1959</p> <p>LP-GAS SCHOOL SCHEDULE</p> <p>MAY 13, 1959</p> <p>9:00 a.m. to 9:15 a.m. Assembly</p> <p>9:15 a.m. to 10:00 a.m. Principles of LP Carburetion</p> <p>10:00 a.m. to 10:45 a.m. Sequence of Installations: (a) Farm Equipment (b) Over-the-road Equipment (c) Indoor Equipment</p> <p>10:45 a.m. to 11:15 a.m. Clean up and travel to school</p> <p>11:15 a.m. to 11:45 a.m. Lunch</p> <p>11:45 a.m. to 12:15 p.m. Assembly</p> <p>12:15 to 2:15 p.m. Shop Installation</p> <p>2:15 p.m. to 2:30 p.m. Rest Period (Coffee)</p> <p>2:30 p.m. to 3:15 p.m. Review</p> <p>3:15 p.m. to 3:30 p.m. Zenith Imperial</p> <p>3:30 p.m. to 4:15 p.m. Trouble Shooting</p> <p>4:15 p.m. to 4:45 p.m. Panel Discussion</p> <p>4:45 p.m. to 5:00 p.m. Close</p>
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The course schedule accounts for every minute from 9 am to 5 pm on both days.



AUTO & AERO Supply Company, Inc.

ESTABLISHED 1923

4323 SPRING GROVE AVENUE - PHONE Liberty 2-4323

CINCINNATI 23, OHIO

OUTLINE OF COURSE
LIQUEFIED PETROLEUM GAS AS AN ENGINE FUEL

1. THE NATURE OF LP-GAS AND ITS RELATION TO OTHER FUELS.

2. INTERNAL COMBUSTION ENGINE OPERATION.

Props: Charts, cut-out engine to explain 4-cycle principle.

- (a) Conversion of heat into power
- (b) Control of expansion
- (c) Temperature control and engine efficiency
- (d) The importance of good compression
- (e) The importance of good ignition
- (f) Factors limiting power

3. BASIC FACTS OF FUEL COMBUSTION IN ENGINES.

- (a) The nature of combustion and how it produces power
- (b) What makes some engines knock
- (c) Cause and cure of pre-ignition
- (d) Natural and induced anti-knock valves

4. FACTORS AFFECTING ECONOMY AND POWER.

- (a) Relative heat control of LP-Gas and gasoline
- (b) Why a cold manifold when using LP-Gas
- (c) Why LP-Gas requires earlier ignition timing than gasoline
- (d) Engine lubrication

5. LP-GAS CARBURETOR SYSTEMS.

Props: Cut-out sections of LP-Gas carburetors & charts.

- (a) Comparison of gasoline and LPG systems
- (b) Travel of fuel from tank through filter, regulator to carburetor
- (c) No difference in combustion principles
- (d) Vaporization of gasoline - of LP-Gas
- (e) Evolution of LP-Gas carburetors
- (f) Spud-in method versus LP-Gas carburetors
- (g) Use of dual fuel systems

6. THE REGULATOR AND HEAT EXCHANGER.

- (a) The principle of pressure reducing regulator
- (b) Temperature regulation through heat exchanger. Why necessary?
- (c) How accomplished?
- (c) Service problems

13. TRACTOR (FARM) CONVERSIONS.

- (a) Manifolds
- (b) Discussion of thermo-syphon systems
- (c) Compression ratio changes

14. TRUCK AND BUS CONVERSIONS.

- (a) Conversion procedure
- (b) Engineered changeover kits for diesel engines

15. PASSENGER CARS & TAXICAB CONVERSIONS.

- (a) General considerations
- (b) Selection and mounting of tanks

16. INDUSTRIAL ENGINE CONVERSIONS.

17. INSTALLING AND ADJUSTING L.P.G. CARBURETION SYSTEMS.

Props: Installation actually made on vehicle

18. LUBRICATION OF L.P.G. ENGINES.

- (a) Why oil becomes thicker instead of thinner
- (b) Correct viscosity and how to maintain it
- (c) Fuel residues in filters
- (d) Is there a need for break-in oil?

19. TROUBLE SHOOTING.

- (a) Hard starting
- (b) Freeze-ups
- (c) Loss of power
- (d) Poor economy

20. SAFE STORAGE & HANDLING OF LP-GAS.

A. FUNCTIONS OF THE LPG DISTRIBUTOR

1. Receive tank car or tank truck shipments
11. Unload & store LPG
111. Deliver LPG - I.C.C. vs A.S.M.E.

- (a) In cylinders 20# - 33# - 45#

- I.C.C. design
 - I.C.C. fittings
 - (1) Relief valve
 - (2) Excess flow
 - (3) Float gauge
- Handling filling gauging

- (b) In bulk

- Tank truck
- A.S.M.E. design
- A.S.M.E. fittings
- (1) Filler valve
- (2) Excess flow
- (3) Relief valve
- (4) Rotary gauge
- (5) Maximum liquid level gauge
- (6) Vapor return valve

Pumps

Receivers

7. FUEL SUPPLY SYSTEM FOR VEHICLES.

Props: Cut-out I.C.C. Cylinder and A.S.M.E. Tank

- (a) Safety codes applying to L.P.G. tanks
- (b) Explanation of Division IV of pamphlet N.P.F.A. #58 "Liquefied Petroleum Gas as an Engine Fuel"
- (c) Fittings and valves, gauges, proper mounting, cutage and tank capacity, tank markings. Selection of tanks.
- (d) The fuel line. Proper protection.
- (e) Testing fuel lines for leaks
- (f) Fuel filters. How to service them
- (g) Solenoid valves - (electric fuel lock-offs)

8. PLANNING THE L.P.G. CONVERSION.

- (a) Standard guide for plans
- (b) Analysis of operation problem
- (c) Time saving suggestions

9. CHECKING THE ENGINE'S CONDITION.

Props: Vacuum gauge, Compression gauge, timing light, combustion tester, standard pressure gauge 0-200, manometer kit gauge 75 manometer #1212

- (a) Technique of testing with the vacuum gauge
- (b) Interpretation of readings
- (c) Locating intake manifold leaks
- (d) Compression tester
- (e) Permissible variations in compression
- (f) Ignition tests

10. RAISING THE COMPRESSION RATIOS.

- (a) Why, in some cases, this is desirable
- (b) Reasons for increased economy of high compression
- (c) Discussion of higher compression ratios on passenger car engines - truck engines - tractors - materials handling equipment
- (d) Procedures for determining when to change compression ratios
- (e) Milling the head
- (f) Special high compression heads as furnished by the vehicle manufacturer

11. COOLING THE INTAKE MANIFOLD.

- (a) Methods of cooling the standard gasoline manifold
- (b) Installing special LPG manifolds
- (c) Control of manifold temperatures for dual fuel systems
- (d) Special problems with all manifolds
- (e) Regulating the temperature for incoming air

12. IGNITION PROBLEMS.

Props: Charts

- (a) Difference in ignition requirements for gasoline & LPG
- (b) Spark Plugs
- (c) Coils
- (d) Wiring
- (e) Battery
- (f) Ignition timing

B. RESPONSIBILITIES OF DISTRIBUTOR - MUST KNOW SAFETY REQUIREMENTS

1. (a) N.B.F.U. - N.P.F.A. #58
- (b) State fire marshal
- (c) Municipal codes
- (d) Spacing requirements (chart)

II. Must handle LPG safely

III. Must advise customer in safe practices

C. ANSWERS TO SPECIFIC QUESTIONS

- I. Is LPG dangerous
- II. What is refrigeration burn?
- III. Will the tank explode?
- IV. Is LPG poisonous?
- V. What if it escapes in a room?
- Odorant
- Explosive limits
- Densities

D. GENERAL PRECAUTIONS

- I. Do not substitute materials
- II. Protect all service lines
- III. Do not overfill containers
- IV. Do not convert old worn out equipment

E. WHAT TO DO IN CASE OF A FIRE

- I. Keep containers cool
- II. Disconnect containers or shut off and remove
- III. I.C.C. cylinders should be upright
- IV. Allow escaping gas to burn if possible. Fire should be controlled and not extinguished unless leakage can be stopped.

F. QUESTIONS

21. SELLING OF L.P.G. CARBURETION.

22. FORUM.

Includes instructor, guest speakers and representatives of insurance companies

"The way I look at it," says Koch, "is that the more men we train, the better will be the service they can give. And the better the service, the better it is for the entire LPG industry. Since we do not sell LPG or LPG storage or transfer equipment, the project has created an excellent cooperative situation. We have left LPG sales and storage to the gas dealer and he, in turn, leaves the conversions to us. And that, after all, is our business."

So, Auto & Aero set up its first school in September 1955. It has since conducted seven schools in Cincinnati, one in Columbus, one in Dayton, and two in Ashland, Ky. Koch assigned his sales vice president, James E. Coch (the similarity of names is coincidental) the job of training director.

Most of the men who attended these schools are mechanics from Auto & Aero distributors and dealers. However, there are many exceptions. Often, carburetion equipment customers send their mechanics, motor pool men, and super-

intendents to the schools. Included are such large firms as Procter & Gamble, General Electric, Ford, and Johns-Manville.

Another exception was made in the case of local high school students. Since the interested members of the auto mechanics class were unable to attend the day-time sessions, Auto & Aero brought its course to the high school. Two-hour night sessions were held twice a week for four weeks. And Auto & Aero footed the bill, paying small fees for use of the shop and a janitor's services.

"The high school instructor in the automotive field is a logical person for this job (educating the public on LPG). He's like the home economics instructor teacher who, by using LPG-fired kitchen equipment in her classrooms, helps educate future housewives as to its advantages. And, having the Board of Education promote these schools and allowing us to use their facilities removes the aspect of commercialism from this project."

The most recent step forward

in this direction was a school held in Kentucky. Due to the tremendous growth of LPG in that state, the Kentucky Department of Education, aided by the state fire marshal's office and the Kentucky LPGA, decided to incorporate an LPG carburetion course in each of the state's 14 vocational schools. Koch was asked to set up a school to instruct the vocational school auto mechanics teachers. Each of the 14 schools sent an instructor who was expected to set up an LPG carburetion course after attending the Auto & Aero carburetion school. After attending the two-day, 16-hour course, this group gave unanimous approval to the Auto & Aero school—via replies on comment sheets given each graduate. Every one of the 14 described the course and the instructor in superlatives. And nearly every one—because he was a teacher thirsting for knowledge—recommended that the course be broadened.

While the 16-hour course was not comprehensive enough for



AUTO & AERO Supply Company, Inc.
ESTABLISHED 1920

4323 SPRING GROVE AVENUE - PHONE Liberty 2-4323
CINCINNATI 23, OHIO

LPG EXAMINATION QUESTIONS

1. What change must take place in a liquid fuel before it can be ignited?
2. What form of energy is required in order to vaporize a liquid fuel?
3. What is the purpose of the first stage regulator?
4. What is a source of heat to vaporize fuel in a vapor withdrawal system?
5. What source of heat must not be used for vaporizing LPG?
6. What effect does cooling the intake manifold have when operating on LPG?
7. Why is it important to have the LP-Gas container mounted in the correct position?
8. Why should the hydrostatic relief valve have a higher start to discharge pressure setting than the tank relief valve?
9. Why does LPG burn more completely than gasoline?
10. What is the purpose of the final stage regulator?
11. How can a first stage regulator be checked for a leaking valve?
12. How can the first stage regulator be used as a tool for testing and adjusting the final stage regulator?



AUTO & AERO Supply Company, Inc.
ESTABLISHED 1920

4323 SPRING GROVE AVENUE - PHONE Liberty 2-4323
CINCINNATI 23, OHIO

June 29, 1959

We were very pleased that you were able to attend our LP-Gas school in June, 1959. We will appreciate your comments on the course offered. You as the student are in a position to give us some valuable pointers, such as:

1. Did the course offer what you wanted? _____
2. Have you any suggestions for improving the course? _____
3. Would you suggest we give more time to certain subjects, if so, what subjects? _____
4. Would you eliminate any subjects? _____
5. Would you like to see the course condensed? _____ "Broadened" _____
6. In your opinion was the instructor well qualified to conduct the course? _____

Please give us your honest opinions. A self-addressed envelope is enclosed for your convenience.

NOTE: IN THE TIME WE RECEIVE YOUR RETURNED QUESTIONNAIRE THE CLASS PHOTOS WILL BE MADE AND BE SHIPPED FORWARD ON TO YOU.

AUTO & AERO SUPPLY COMPANY, INC.

James E. Koch, Training Director

REMARKS: _____

NAME: _____

The final examination has only a few questions, but they are sufficiently penetrating to determine whether the student has paid attention and has understood.

This comment sheet is filled in by each graduate. Comments generally are strong endorsements, but occasional criticisms help improve the school.

these vocational school teachers, it has satisfied the needs of most other groups. Sixteen hours has proved to be a good middle-of-the-road compromise. Economically, it makes sense to set up such courses in eight-hour, or one-day, increments. Auto & Aero tried an eight-hour course in 1958, but students complained it was too short. The 16-hour course is held on two consecutive days, or is broken into eight two-hour night sessions, held four to a week for two consecutive weeks.

Koch now considers the 16-hour course to be the minimum for imparting the necessary knowledge to the type of student the school attracts. Many of the students are LPG servicemen who know all about the fuel's domestic uses and the related safety aspects. On the other hand, most of them are unfamiliar with the use of LPG for carburetion and perhaps just as unfamiliar with the inside of an internal combustion engine.

Thus, Auto & Aero puts the most emphasis on: 1. Basic principles of internal combustion engines; 2.

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Correct methods of converting an engine to LPG (including the regulations contained in: Section 4 of Pamphlet 58, and the Factory Mutual Insurance and Factory Insurance Association bulletins); and 3. Proper checking of the starting and fuel systems.

Actually, there is much more to the course than these three points. As shown in the accompanying illustration, the course outline has 22 major topics. The course consists of about 70 per cent theory and 30 per cent application of that theory.

Koch and Coch have found that the most effective ways of getting the material across to the students are: visual aids, such as charts and slides; cut-out sections of the various units; and practice conversions with two of the students doing the work while the instructor describes the procedure, step by step.

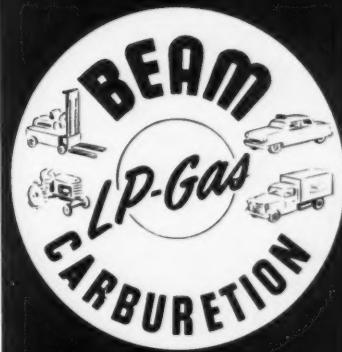
Each student gets a copy of the "Butane-Propane Power Manual," written by the late editor of BUTANE-PROPANE News, Carl Abell. Koch says the Auto & Aero course follows this manual "just about 100 per cent." He adds that copies of the manual were given the Kentucky vocational school teachers and they were advised to build their course outlines around it.

Each student also receives a folder jammed with pertinent material, led off by a copy of Koch's carburetion school kick-off speech, "LPG as an Engine Fuel." This is followed by a pair of reprints of BPN articles: "The Castle & Cooke Story: All 59 Forklifts on LPG," and "America's leading Industries use L.P. Gas Fork Lift Trucks." The folder also contains: a large number of information sheets and brochures printed by various carburetor manufacturers, a copy of the "Ohio Rules and Regulations for LPG," and Zenith Carburetor's "Safety Check List for LPG-Equipped Industrial Vehicles."

Guest speakers are usually brought in for the classes. Included are LPG refinery representatives, LPG dealer representatives, insurance company experts, and conversion equipment manufacturers and their engineers.

An actual class schedule is shown in the accompanying illustration. Note that every minute from 9 a.m. until 5 p.m. is accounted for.

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as cast iron

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DEPT. B-34

PONTIAC, ILL.

Carburetion schools . . . At course's end an examination is given for two reasons

Koch usually gets the classes underway with his talk. A state fire marshal follows with a safety presentation that immediately wipes away many questions and misconceptions which might otherwise clutter up the students' minds. A 1 1/4-hour session on “Basic Engine Facts” winds up a first-morning session that is kept short to enable the students to have an early lunch and prepare for a full afternoon.

Working under Koch's direction, carburetion conversion equipment manufacturers' experts get down to brass tacks in the afternoon. Most of the afternoon is devoted to 15- or 30-minute sessions on comparison of LPG and gasoline systems; intake manifold cooling; compression ratios; ignition problems; high pressure hose and fittings; cylinders, tanks, couplings, and fittings; and safety regulations. A 1 1/4-hour session on vaporizers and regulations winds up the day.

The morning of the second day is devoted to the “Principles of LPG Carburetion” and the “Sequence of Installations” for farm, over-the-road, and indoor equipment.

In the afternoon, actual installations of conversion equipment are made under the direction of Koch's service manager, Cliff Gorham. If the size of the class permits, the installations are sometimes torn down, giving students an additional opportunity to practice. Review and trouble shooting sessions follow. The course winds up with a panel discussion. This is usually a question-and-answer period with the questions coming on 3 x 5 cards given the students at the beginning of the course.

In recent classes, students were advised that there would be a short examination at the end of the course. This was done for two reasons. First, it would combat any tendency for a student's interest to wane, assuring virtually 100 per cent attention during the 16 hours. Second, failure of a number of students to correctly answer the same question indicates that sufficient

time was not devoted to the subject. As may be seen by the accompanying illustration of an exam, the questions are few, but sufficiently penetrating to do the intended job.

The schools are held in a 17 x 30 air conditioned classroom that Auto & Aero also uses for brake, carburetion, and electrical schools. It seats 30 for conferences. For tear-down, build up courses (such as the LPG carburetion school), classes are limited to 16, seated two to a bench that is equipped with vises and tool boards. The classroom has a dynamometer, an oscilloscope, a pair of slide projectors, a tape recorder, demonstration conversion kits and cutaways, and flip charts. Since the dynamometer and the oscilloscope are part of the company's regular tune-up equipment, the cost of setting up the classroom is estimated to be only about \$900. That figure includes the projection equipment, tape recorder, chairs, work benches, etc.

The dynamometer is particularly useful in the LPG classes, since it proves to the students that there is little or no power loss—sometimes even a gain—when an engine is properly converted to LPG. The oscilloscope is also a big help, especially when the pupils are new to internal combustion engine tune-up work. It completely analyzes an engine's electrical system without the necessity of removing any parts, providing speed and simplicity far outpacing ordinary tune-up equipment.

The course is open not only to LPG men, but also to general automotive mechanics who express an interest in LPG carburetion. Understandably, the applications for a course always exceed the number of students who can be accommodated. To provide at least a small limiting factor, Koch set a \$10 fee for out-of-state students, but does not charge Ohioans (or men from his out-of-state distributors). He explains it this way:

“We feel that being an Ohio corporation, we should show prefer-

ence to Ohio students. Technical schools operated by the University of Cincinnati and the Cincinnati Board of Education also charge out-of-state students more than local students."

The \$10 fee covers part of the cost of the equipment used, in addition to paying for the manuals and other literature given the students. Koch still figures each course costs the company about \$100, including the instructors' time. Meals (usually at the local high school cafeteria), quarters, and other living expenses are paid for by the students.

What have these courses really accomplished? Koch says it's difficult to evaluate their worth, but he does point out these concrete examples:

First, it puts men from companies which use LPG for materials handling equipment in a much better position to service the equipment and locate troubles; Second, it brings to the attention of the mechanics and sales personnel from propane dealers, the tremendous load possibilities through converting all types of farm tractors, stationary engines, farm trucks, etc.; Third, it has stimulated interest in LPG as an engine fuel—to the extent that students are talking and recommending LPG.

"We believe our students leave the course firmly convinced of the safety of properly-handled LPG and its economy," says Koch, "particularly in reducing engine maintenance costs."

"Our sales of conversion equipment have gone up 200 per cent. How much of this is to be credited to our educational activities is difficult to say."

It's BPN's hunch that Auto & Aero's carburetion sales will probably increase another 200 per cent in the next five years—and that the company will reap good-will benefits from its carburetion schools for many years to come. And the same sort of sales increases and good-will benefits could go to any company performing such a genuine public service as a series of carburetion schools. ■

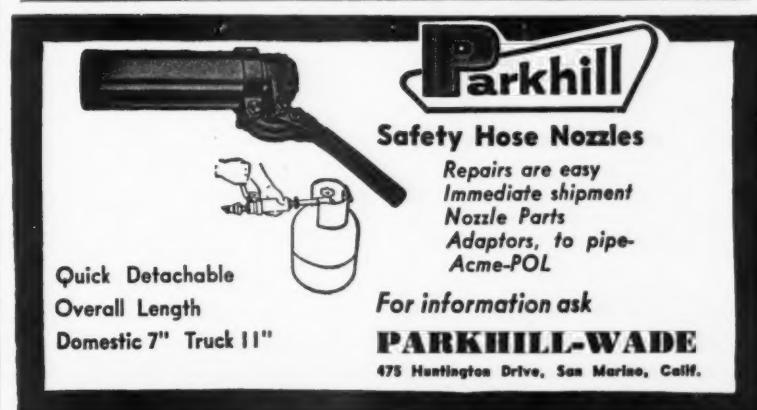
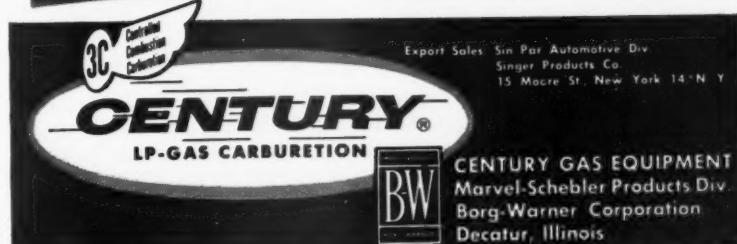


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- 3 MORE POWER WITHOUT ADDED FUEL CONSUMPTION**
- 4 DESIGN DUPLICATES ORIGINAL GASOLINE CARBURETER**

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Century Model 3C-705-DTL LP-Gas carburetor replaces all 2300 series DUAL THROAT HOLLEY gasoline carburetors used on V-8 engines manufactured by Ford and International Harvester. Available soon with governor.





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GAS FUEL GRADUATE: Southern Technical Institute, unit of Georgia Tech, two years' previous experience, desires position in Engineering or Management. Age 23, single, draft exempt. Prefer location in South East. Write William M. Johnson, 508 Marshall St., Albertville, Alabama. Telephone 493.

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BUSINESS OPPORTUNITIES WANTED

WANTED TO PURCHASE: RETAIL L.P. GAS business in Midwestern or Southeastern states. Reply Box 13, BUTANE-PROPANE News, 198 S. Alvarado St., Los Angeles 57, Calif.

WANTED: TO ACQUIRE L.P. GAS business in or within 50 miles of Chicago. Reply Box 19, BUTANE-PROPANE News, 198 So. Alvarado St., Los Angeles 57, Calif.

BUSINESS OPPORTUNITIES OFFERED

LPG BULK PLANTS. WE SPECIALIZE in selling petroleum properties throughout Midwest. Have number desirable plants for sale. OLE BRODD, PETROLEUM MARKETERS, 605 Produce Bank Bldg., Minneapolis, Minnesota.

FOR SALE — TRUCKS - TRAILERS

USED PROPANE DELIVERY TRUCKS, 1200 GALLONS W. G. Presently in use and being replaced with larger units. United Petroleum Gas Co., 4820 Excelsior Blvd., Minneapolis 16, Minnesota.

FOR SALE

A QUANTITY OF 7200-GALLON NECKDOWN TRANSPORTS.

Excellent Condition, Good Rubber, AIRIDE TANDEM.

TRINITY STEEL, INC.

4001 IRVING BLVD., DALLAS, TEXAS
Fleetwood 7-3061

DISPLAY CLASSIFIED

\$12.00 a column inch per issue. Choice of 18, 14, 12, 10 pt. display type for headings. Set with 1 pt. border. Maximum ad size 3". No cuts permitted. Publisher will set ad for maximum effect in space purchased.

UNDISPLAYED CLASSIFIED 15¢ a word. Set in 6 pt. type without border. \$3.00 minimum charge per insertion. If Blind Box number case of B-P News is used, count as five words.

POSITION WANTED. Undisplayed rate is one half of above rate, payable in advance.

DISCOUNT OF 10% if full payment is made in advance for four consecutive insertions of undisplayed ads.

FOR SALE—TRUCKS - TRAILERS - Cont.

USED FRUEHAUF TRAILER 6,000 W. G. capacity complete with 1955 International Tractor in excellent condition. Both units total price \$4,000. Citizens Gas Co., Salisbury, Maryland.

7100 to 8200 GALLON TRAILERS—T-1 and 202 Steel—\$7795.00 reconditioned—New Recaps—will deliver 700 miles—Phone E 6-1730. PAT & CHUCK SUPPLY CO., "The Traditional Monkeys in Texas." Ft. Worth, Texas.

1956 DODGE W/1560 TWIN Complete tanks. Good condition, ready to go. Complete with meter, pump, hose and etc. Southwest GAs P. O. Box 390, Liberal, Kansas.

1953 CHEVROLET 1400 W.C. TWIN Trinity. Neptune printometer, Viking pump, new hoses, extinguisher, ready to go \$2,500. Stewart's Philgas, Seymour, Indiana.

TRAILER BARGAIN. 7170 gallon LP-Gas tandem trailer perfect running condition. Half price for cash. Write R. E. McLimore, 2725 Mill St., Mobile, Alabama.

TRANSPORTS: SINGLE OR TWIN barrel; new or used; for lease, or sale on budget or rental sale plan. If you want maximum payload, with all of the latest equipment engineered to fit your truck, roads, and your hauling problem, get the

LMC PAYLOADER

Contact Lubbock Machine & Supply Co., Inc., Drawer 1589, Lubbock, Texas

TRINITY BULK TRUCK UNITS

In stock, ready for immediate delivery. Buy early and avoid steel price increases.

Write, wire or phone RAY REEDY

TRINITY STEEL CO.

Dallas, Texas

Phone: FL-7-3961

SPECIAL NOTICE! BUTANE-PROPANE DEALERS

Earn More Money Hauling More Gas and Less Steel . . . Load and Unload Faster

Balanced Nor-Tex units escape the annual Federal tax on trucks that weigh more than 13,000 lbs.! Users everywhere praise the Nor-Tex 2500 WG Single Barrel Payload Special of 202B X-rayed material. Weighs only 12,800 lbs.! Completely equipped with High Flow Plumbing, Meter, Hose, Hose Reel, Fire Extinguisher and mounted on cab-forward truck with 108" cab to axle dimension. Increased capacity pump boosts delivery to 50 GPM. Vapor manifold permits easy, simultaneous loading and unloading of twin tanks with either compressor or liquid pumps. These popular, carefully engineered and sleek designed Nor-Tex Single and Twin units are produced in four attractive models: The "Standard"—The "Custom"—The Payload "Special" and the "De Luxe." That's not all! Twin units, up to 2000 WG, are mounted on 84" cab to axle. Start hauling more gas and less steel. Do it profitably and in much less time.

For prices, phone, wire or write

NORTH TEXAS TANK CO.
Denton, Texas

DUPont 2-5416.

FOR SALE—TRUCKS - TRAILERS - Cont.

BULK TRUCK UNITS

NEW UNIT, ready to roll, at \$6500 can be financed (we carry our own paper) for \$650.00 DOWN and 36 payments of \$187.54, INCLUDING INTEREST.

Immediate delivery all sizes with any make truck.

Used Units also. We Trade.

Preston Grace

WHITE RIVER DISTRIBUTORS
Ph RI-3-2374-Batesville, Ark.

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USED DELIVERY TANKS

I—1040 Twin on 350 GMC—1954 model
Very Good Condition
I—1200 Twin-Tanks only
Fair Condition
I—1250 Twin-Tanks only
Good Condition
I—1430 Twin on 1961 Chev. Butane Powered
Fair Condition

LUBBOCK MACHINE & SUPPLY
PO 25261—Box 1589—Lubbock, Texas

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Immediate Delivery
350# WP Propane Storage Tanks, 8,350 WG through 12,450 WG; 72" diameter; 10,170 WG through 16,800 WG; 84" diameter; 15,200 WG through 20,500 WG, 95" diameter. Ready for immediate delivery our truck fleet. ORDER EARLY and AVOID STEEL INCREASE!
Write, wire or phone RAY REEDY

TRINITY STEEL CO.
DALLAS, TEXAS
Phone: FL-7-3961.

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All or Part! Never used yet kept new with nitrogen! Will relocate as complete atmospheric-creating industrial or bottle gas plant with excellent N. E. Illinois present location available!!! Consisted of two 30 M propane tanks; vaporizer, etc.; compressor; pump; T.C. & T.T. risers; 900' Peice; etc., etc.

BOX 12, BUTANE-PROPANE News
198 So. Alvarado St., Los Angeles 57, Calif.

PROPANE GAS SYSTEMS

"Listed by Underwriters' Laboratories, Inc." If you use as many as one load of tanks per year, it will pay you to contact us. Distribution throughout the Mid-West and Southern states.

LOWRY TIMS COMPANY
Quality Steel Products Division, Cleveland, Miss.

SKID TANKS

— IN STOCK NOW —

3000 gallon size built especially rugged for oil field use. Write, wire or phone
Lubbock Machine & Supply Co., Inc.
P. O. Drawer 1589
Lubbock, Texas

CLASSIFIED ADVERTISING

WANTED—MISCELLANEOUS

WANT TO BUY USED 100 LB. SIZE Propane gas cylinder. Must be light weight, in good condition. Crouch Gas Service, Glencoe, Kentucky.

WANTED: USED 100 LB. CYLINDERS, from 200 to 400, in New York, Connecticut, Vermont or Massachusetts. Sherwood Electrical Service, P. O. Box 1029, Woodstock, N. B.

WANTED: 30,000 GALLON USED TANKS. Will consider 18,000 gallon also. Reply to Midwest Bottle Gas Co., 119 North 3rd Street, LaCrosse, Wisconsin.

WANTED: USED 1400 GALLON or larger delivery tank. Reply Box 18, BUTANE-PROPANE News, 198 So. Alvarado St., Los Angeles 57, Calif.

WANTED USED 500 and 1000 Gallon Propane Tanks

WRITE or CALL
GRASSO BROS.

3000 Reavis Barracks Rd., St. Louis 25, Missouri.

FOR SALE—MISCELLANEOUS

DIXIE SEMI-LOCK HOODS, ALUMINUM and Aluminum coated steel. Wall bracket or free standing. GUARANTEED mechanically for life. \$3.00 up. Dixie Manufacturing Company, Elizabethtown, Kentucky, Box 65. Phone Collect RO-5-9229.

FOR SALE—IMMEDIATE DELIVERY! Eureka Smokehouse Burner Assemblies! For meat smoke houses using bottled gas. Completely automatic. Clean filtered smoke. Distributes heat uniformly. Low gas consumption. Automatic temperature and pilot control. Less product shrinkage. Easily installed. Write for descriptive pamphlet. Eureka Equipment Company, P.O. Box 396, Beloit, Wisconsin.

SPECIAL SALE: Two—single axle propane tank trailers. One—Black Sivalls, twin tank, 4120 gallon capacity. One—Quaker City, 4,000 gallon capacity. Both with 5 h.p. electrical pump motors. Terms Available. Berman Sales Company, Pennsburg, Penna. ORleans 9-7911.

SURPLUS EQUIPMENT DISPOSAL—Propane Materials Warehouse, Erie, Pennsylvania. A wide assortment of useful items including: T & P relief valves, burner jets, torches, tips, electrical equipment, Kemp Carburetor, valves, electric hoist, Viking pumps, straight and taper shank drills, stove bolt, machine and pipe taps, tools, plated machine and stove bolts. All reasonable offers considered—Send for list of items of interest. The Propane Corp., 302 E. 131st, Cleveland 8, Ohio. Service Engr. Dept., Phone: GLenville 1-5220.

FOR SALE: BAKER ALCOHOL PUMPS. A must if you are in the gas business. Sure cure for moisture problems. Hydraulically designed for injecting alcohol into propane-butane tanks against pressure. Send \$59.95 for pump complete with fitting. Baker Engineering, Malone, New York.

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At Special Off-Season Prices

W600A—6 cu. ft.

BN600A—6 cu. ft.

S600A—with Cross-top Freezer

Used: Guaranteed in good operating order. Excellent condition. Low delivery cost anywhere. Send for illustrated folder NOW.

BEACH REFRIGERATOR CO.

196-11 Northern Blvd. Flushing 58, N. Y.
Phone Flushing 7-6161

FOR SALE—MISC.—Cont.

DECALS MADE FOR TRUCKS, EQUIPMENT. Small or large quantities. Catalog free. Mathews Co., 827 S. Harvey, Oak Park, Ill.

MAILING LIST OF L P GAS DEALERS. Approximately 2500 names on Elliott address large stencil. Southwest GAs, Box 390, Liberal, Kansas.

SERVEL REFRIGERATORS

4 & 6 cu. ft.—U-type Evaporator
6-7-8 cu. ft. Cross-top Freezer

Clean—Guaranteed—Low Cost Shipping

FRED A. BROWN COMPANY

170 W. Cumberland St., Phila. 33, Pa.
Est'd 1918 Call Collect RE 9-1138

SPECIAL OFFERING

One used Corken Pump Model 60-191 (60-70 gallon per minute) complete with a Model #22 Briggs & Stratton Gasoline engine mounted on base.

Two L P Gas compressors, used, but in good condition—Corken Model 90-104, complete vapor pump (less liquid trap), with Kohler K-330 Clutch equipped gasoline engine mounted on base. (One with vaporizer for L. P.

Gas).
WRITE: Propane Department
Black, Sivalls & Bryson, Inc.
7500 East 12th Street
Kansas City 26, Missouri
PHONE: BENton 1-7200

STATION PUMPS — (2) L-190

Viking Pumps with mechanical seals (without motors).

(2) 4 x 5 PSCC Dear Pumps (with or without 3 h.p. explosion-proof motors).

All in good condition—30-day money-back guarantee—no reasonable offer refused.

ALSO 150 ft. propane hose—1 1/4" Hewitt-Robins, new, with smooth couplings—30¢ ft.

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1701 Brook Road, Richmond, Va.

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Twin Tank 2000 WG butane powered delivery truck completely equipped including Neptune Print-O-Meter mounted on International A160 reinforced chassis. New Sept. 1957. Engine overhauled, Dec. 1959. Excellent rubber. Cost \$7126.53, Price \$4750.00.

Arch Trailer, Capacity 1000 WG. Tanks—Hand winch—electrified, New retreats—pintle hook. Cost \$522.00, Price \$395.00.

13—1000 WG Field Tanks New 1957-58
19— 500 WG " " "
24— 250 WG " " "
19— 150 WG " " "
Cost \$16807.14, Price \$14750.00.

Contact:—Dewey L. Pierce

P. O. Box 5582, Tucson, Arizona

FOR RENT or LEASE

6,000 to 30,000 PROPANE STORAGES for sale, rent or lease. Financing and installation available. Reply Box 16, BUTANE-PROPANE News, 198 So. Alvarado St., Los Angeles 57, Calif.

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LET MY 32 YEARS OF PRACTICAL "LP" experience assure you maximum profits. Equipment revisions, property evaluations for sales or refinancing, and assistance on legal suits also supplied. Floyd F. Campbell, Management Counselor, 821 Crofton Ave., Webster Groves, Mo.

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Designed and Installed

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Have your agent write us about our Complete and Comprehensive Coverage for Adequate Limits of Liability at Reasonable and Normal Rates with Specialized Safety Engineering and Claim Service. Available only in Alabama, Arkansas, Arizona, Florida, Georgia, Kansas, Louisiana, Mississippi, New Mexico, Oklahoma and Texas.

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Earl W. Gommage, President

P. O. Box 1662 Houston, Texas

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BUSINESS RECORD FORMS. ALL-WEATHER EZE-SNAP delivery invoices, for use when making LP gas metered truck deliveries. 1000 sets (3 part) imprinted with name, address and telephone. \$18.00 per 1000 sets. Advise make of meter. DEGREE DAY SYSTEMS, Dept. BP WOODSIDE 77, L. I., N. Y.

SERVING 20,000 PETROLEUM COMPANIES over 30 years with petroleum price cards, customer reminder Eze-Stik labels, telephone—service order—L/P metered delivery invoices, Eze-Snap Service Form, Duraluminum ticket holders, Sort-O-Matic Rack, etc. Write us for details, no obligation. DEGREE DAY SYSTEMS, Dept. BP., WOODSIDE 77, NEW YORK.

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The Bottled Gas Manual has been accepted by many companies as the quickest way to acquaint new sales and service men with typical bottle gas problems. This 352 page (24 chapter) text book brings practical "working" facts to your entire staff in non-technical language. Nearly 10,000 copies in use.

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Butane-Propane News

198 S. Alvarado Street, Los Angeles

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Where space is at a premium, companies on interruptible natural gas contracts face a difficult storage problem. Often the solution lies in the installation of vertical storage tanks developed by American Car and Foundry. Available in capacities up to 30,000 gallons, these pressure vessels may be used for LP gas and anhydrous ammonia or, with slight modifications, for vinyl chloride, refrigerants and other compressed gases or liquids.

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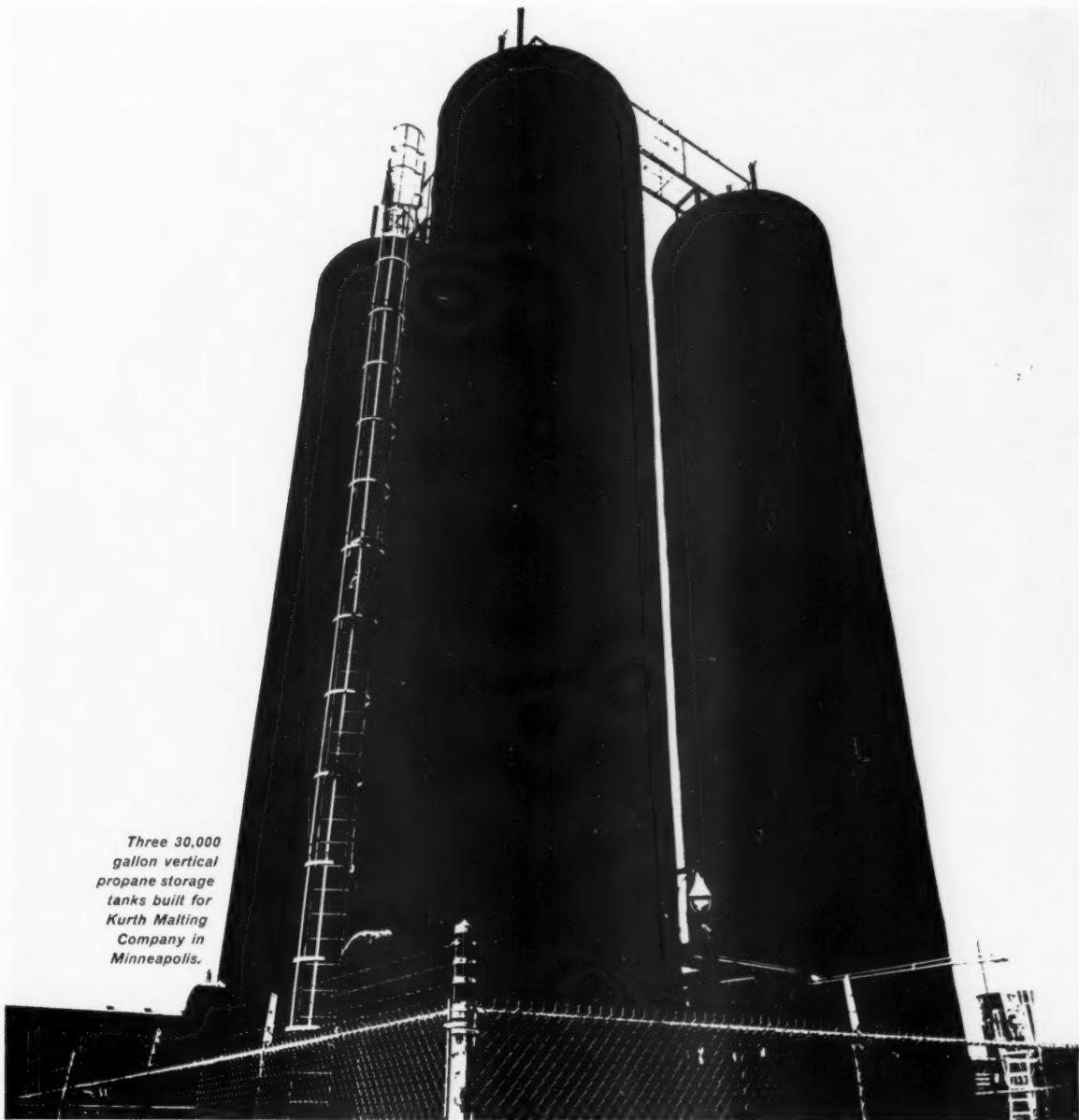
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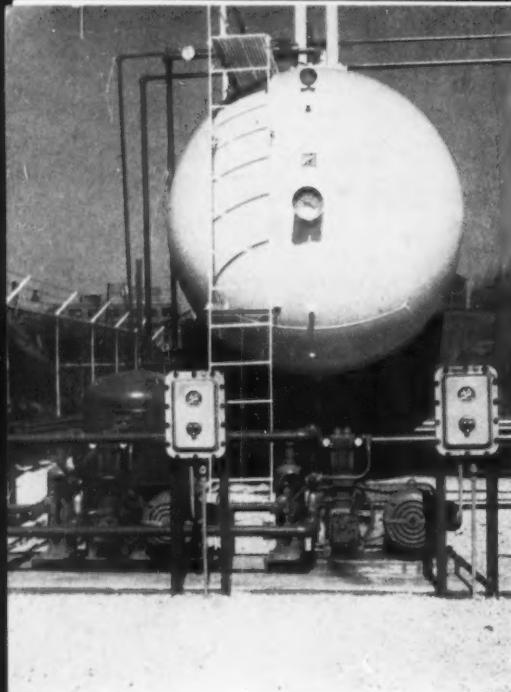
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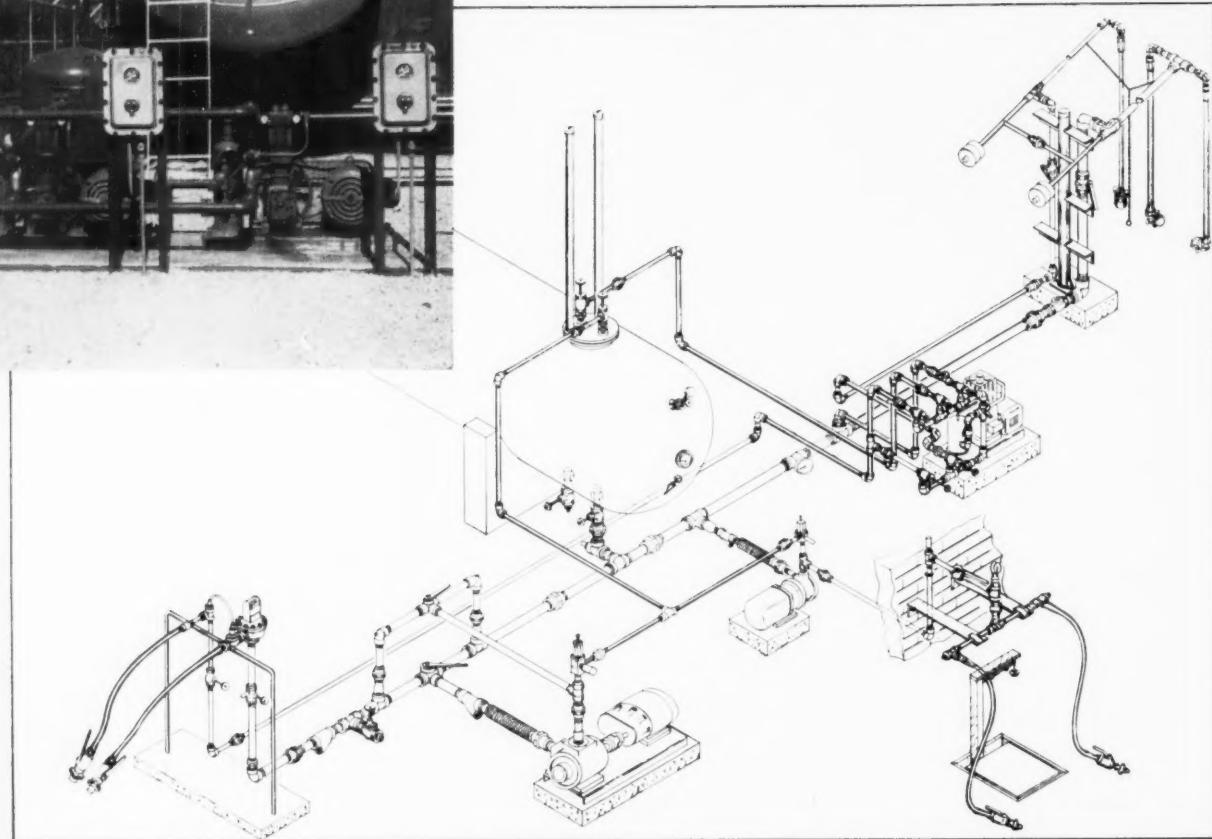
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Anco can handle all or any part of an LP Gas plant, new or modernization project, on land or water. Two plate shops and complete warehouse stocks enable ANCO to meet delivery requirements and competition.

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